

SEQUENCE LISTING

<110> Licentia Ltd.

<120> Novel protein and uses thereof

<130> 40552

<150> US 60/433,011

<151> 2002-12-13

<160> 32

<170> PatentIn Ver. 2.1

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<211> 1479

<212> DNA

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 Ser Ser Val Leu Ser Thr Thr Pro Pro Asp Ala Pro Ser Arg Lys Ala
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 agc gtc cac aag cac gta gtc ttt ctg gag cca ggc cgg agg ggc ctc 1392
 Ser Val His Lys His Val Val Phe Leu Glu Pro Gly Arg Arg Gly Leu
 450 455 460
 aat ggc cgc gtg cag ctg gca gta gct gag gaa ttc gat ctc tac aac 1440
 Asn Gly Arg Val Gln Leu Ala Val Ala Glu Glu Phe Asp Leu Tyr Asn
 465 470 475 480
 cct gga ggc ctg cag ctg aag gct ggc tct gag tcc gcc agc tcc ata 1488
 Pro Gly Gly Leu Gln Leu Lys Ala Gly Ser Glu Ser Ala Ser Ser Ile
 485 490 495
 ggc tcc gag ggt ccc atg aca acc 1512
 Gly Ser Glu Gly Pro Met Thr Thr
 500

<210> 6
 <211> 504
 <212> PRT
 <213> Homo sapiens

<400> 6
 Met Thr Trp Leu Val Leu Leu Gly Thr Leu Leu Cys Met Leu Arg Val
 1 5 10 15
 Gly Leu Gly Thr Pro Asp Ser Glu Gly Phe Pro Pro Arg Ala Leu His
 20 25 30
 Asn Cys Pro Tyr Lys Cys Ile Cys Ala Ala Asp Leu Leu Ser Cys Thr
 35 40 45
 Gly Leu Gly Leu Gln Asp Val Pro Ala Glu Leu Pro Ala Ala Thr Ala
 50 55 60
 Asp Leu Asp Leu Ser His Asn Ala Leu Gln Arg Leu Arg Pro Gly Trp
 65 70 75 80
 Leu Ala Pro Leu Phe Gln Leu Arg Ala Leu His Leu Asp His Asn Glu
 85 90 95
 Leu Asp Ala Leu Gly Arg Gly Val Phe Val Asn Ala Ser Gly Leu Arg
 100 105 110
 Leu Leu Asp Leu Ser Ser Asn Thr Leu Arg Ala Leu Gly Arg His Asp
 115 120 125
 Leu Asp Gly Leu Gly Ala Leu Glu Lys Leu Leu Leu Phe Asn Asn Arg

130	135	140
Leu Val His Leu Asp 145	Glu His Ala Phe His 150	Gly Leu Arg Ala Leu Ser 155 160
His Leu Tyr Leu Gly 165	Cys Asn Glu Leu Ala 170	Ser Phe Ser Phe Asp His 175
Leu His Gly Leu Ser 180	Ala Thr His Leu Leu 185	Thr Leu Asp Leu Ser Ser 190
Asn Arg Leu Gly His 195	Ile Ser Val Pro Glu 200	Leu Ala Ala Leu Pro Ala 205
Phe Leu Lys Asn Gly 210	Leu Tyr Leu His Asn 215	Asn Pro Leu Pro Cys Asp 220
Cys Arg Leu Tyr His 225	Leu Leu Gln Arg Trp 230	His Gln Arg Gly Leu Ser 235 240
Ala Val Arg Asp Phe 245	Ala Arg Glu Tyr Val 250	Cys Leu Ala Phe Lys Val 255
Pro Ala Ser Arg Val 260	Arg Phe Phe Gln His 265	Ser Arg Val Phe Glu Asn 270
Cys Ser Ser Ala Pro 275	Ala Leu Gly Leu Glu 280	Arg Pro Glu Glu His Leu 285
Tyr Ala Leu Val Gly 290	Arg Ser Leu Arg Leu 295	Tyr Cys Asn Thr Ser Val 300
Pro Ala Met Arg Ile 305	Ala Trp Val Ser Pro 310	Gln Gln Glu Leu Leu Arg 315 320
Ala Pro Gly Ser Arg 325	Asp Gly Ser Ile Ala 330	Val Leu Ala Asp Gly Ser 335
Leu Ala Ile Gly Asn 340	Val Gln Glu Gln His 345	Ala Gly Leu Phe Val Cys 350
Leu Ala Thr Gly Pro 355	Arg Leu His His Asn 360	Gln Thr His Glu Tyr Asn 365
Val Ser Val His Phe 370	Pro Arg Pro Glu Pro 375	Glu Ala Phe Asn Thr Gly 380
Phe Thr Thr Leu Leu 385	Gly Cys Ala Val Gly 390	Leu Val Leu Val Leu Leu 395 400
Tyr Leu Phe Ala Pro 405	Pro Cys Arg Cys Cys 410	Arg Arg Ala Cys Arg Cys 415
Arg Arg Trp Pro Gln 420	Thr Pro Ser Pro Leu 425	Gln Glu Leu Ser Ala Gln 430
Ser Ser Val Leu Ser 435	Thr Thr Pro Pro Asp 440	Ala Pro Ser Arg Lys Ala 445
Ser Val His Lys His 450	Val Val Phe Leu Glu 455	Pro Gly Arg Arg Gly Leu 460

Asn Gly Arg Val Gln Leu Ala Val Ala Glu Glu Phe Asp Leu Tyr Asn
465 470 475 480

Pro Gly Gly Leu Gln Leu Lys Ala Gly Ser Glu Ser Ala Ser Ser Ile
485 490 495

Gly Ser Glu Gly Pro Met Thr Thr
500

<210> 7

<211> 1827

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Ig-fusion
protein

<220>

<221> CDS

<222> (1)..(1827)

<400> 7

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Met	Gln	Pro	Gln	Arg	Asp	Leu	Arg	Gly	Leu	Trp	Leu	Leu	Leu	Leu	Ser	
1				5				10						15		
gtg	ttc	ctg	ctt	ctc	ttt	gag	gta	gcc	agg	gcc	ggc	cga	tct	gtg	gtt	96
Val	Phe	Leu	Leu	Leu	Phe	Glu	Val	Ala	Arg	Ala	Gly	Arg	Ser	Val	Val	
			20					25					30			
agt	tgt	ccc	gcc	aac	tgc	ctg	tgc	gcc	agc	aac	atc	ctc	agc	tgc	tcc	144
Ser	Cys	Pro	Ala	Asn	Cys	Leu	Cys	Ala	Ser	Asn	Ile	Leu	Ser	Cys	Ser	
		35				40						45				
aag	cag	cag	ctg	ccc	aat	gtg	ccc	caa	tct	ttg	ccc	agc	tac	aca	gca	192
Lys	Gln	Gln	Leu	Pro	Asn	Val	Pro	Gln	Ser	Leu	Pro	Ser	Tyr	Thr	Ala	
	50				55					60						
ctg	ctg	gac	ctc	agc	cac	aac	aac	ttg	agc	agg	ctg	cgg	gcc	gag	tgg	240
Leu	Leu	Asp	Leu	Ser	His	Asn	Asn	Leu	Ser	Arg	Leu	Arg	Ala	Glu	Trp	
65					70				75					80		
acc	ccc	acc	cgg	ctg	acc	aac	ctg	cac	tcc	ctg	ctg	ctg	agc	cac	aac	288
Thr	Pro	Thr	Arg	Leu	Thr	Asn	Leu	His	Ser	Leu	Leu	Leu	Ser	His	Asn	
			85						90					95		
cac	ctg	aac	ttc	atc	tcc	tcc	gag	gcc	ttc	gtc	ccc	gta	ccc	aac	ctt	336
His	Leu	Asn	Phe	Ile	Ser	Ser	Glu	Ala	Phe	Val	Pro	Val	Pro	Asn	Leu	
			100					105					110			
agg	tac	ttg	gac	ctc	tcc	tcc	aac	cat	ctt	cac	acg	ctg	gat	gag	ttc	384
Arg	Tyr	Leu	Asp	Leu	Ser	Ser	Asn	His	Leu	His	Thr	Leu	Asp	Glu	Phe	
		115					120					125				
ctg	ttc	agc	gac	ctg	cag	gcg	ctg	gaa	gtg	ctg	ttg	ctc	tac	aat	aac	432
Leu	Phe	Ser	Asp	Leu	Gln	Ala	Leu	Glu	Val	Leu	Leu	Leu	Tyr	Asn	Asn	
	130					135					140					

cac att gtg gtg gtg gac cgg aat gcc ttt gag gac atg gcc cag ctg	480
His Ile Val Val Val Asp Arg Asn Ala Phe Glu Asp Met Ala Gln Leu	
145 150 155 160	
cag aaa ctc tac tta agc cag aat cag atc tct cgc ttt cct gtg gaa	528
Gln Lys Leu Tyr Leu Ser Gln Asn Gln Ile Ser Arg Phe Pro Val Glu	
165 170 175	
ctg atc aag gat ggg aac aaa tta ccc aaa ctg atg ctc ttg gat ctg	576
Leu Ile Lys Asp Gly Asn Lys Leu Pro Lys Leu Met Leu Leu Asp Leu	
180 185 190	
tcc tcc aac aag ctg aag aag ttg ccc ctg act gac ctg cag aaa ttg	624
Ser Ser Asn Lys Leu Lys Lys Leu Pro Leu Thr Asp Leu Gln Lys Leu	
195 200 205	
cca gcc tgg gtc aag aat ggg cta tac ctg cat aac aac ccc ttg gag	672
Pro Ala Trp Val Lys Asn Gly Leu Tyr Leu His Asn Asn Pro Leu Glu	
210 215 220	
tgc gac tgc aag ctc tac cag ctc ttt tcg cac tgg cag tac cgg cag	720
Cys Asp Cys Lys Leu Tyr Gln Leu Phe Ser His Trp Gln Tyr Arg Gln	
225 230 235 240	
ctg agc tct gtg atg gac ttc cag gag gac ctg tac tgc atg cac tcc	768
Leu Ser Ser Val Met Asp Phe Gln Glu Asp Leu Tyr Cys Met His Ser	
245 250 255	
aag aag ctg cac aac atc ttc agc ctg gat ttc ttc aat tgc agc gag	816
Lys Lys Leu His Asn Ile Phe Ser Leu Asp Phe Phe Asn Cys Ser Glu	
260 265 270	
tac aag gaa agt gcc tgg gag gct cac ctg gga gac acc ttg acc atc	864
Tyr Lys Glu Ser Ala Trp Glu Ala His Leu Gly Asp Thr Leu Thr Ile	
275 280 285	
agg tgt gac acc aaa cag caa ggc atg acc aaa gtg tgg gtg tcc cca	912
Arg Cys Asp Thr Lys Gln Gln Gly Met Thr Lys Val Trp Val Ser Pro	
290 295 300	
agc aat gaa cag gtg cta agt cag ggg tcc aat ggc tcg gtg agc gtg	960
Ser Asn Glu Gln Val Leu Ser Gln Gly Ser Asn Gly Ser Val Ser Val	
305 310 315 320	
agg aat ggc gac ctt ttt ttt aaa aag gtg cag gtc gag gat ggg ggt	1008
Arg Asn Gly Asp Leu Phe Phe Lys Lys Val Gln Val Glu Asp Gly Gly	
325 330 335	
gtg tat acc tgt tac gcc atg ggg gag act ttc aac gag aca ctg tct	1056
Val Tyr Thr Cys Tyr Ala Met Gly Glu Thr Phe Asn Glu Thr Leu Ser	
340 345 350	
gtg gag ttg aaa gtg tat aac ttc acc ttg cac gga cac cat gac acc	1104
Val Glu Leu Lys Val Tyr Asn Phe Thr Leu His Gly His His Asp Thr	
355 360 365	
ctc aac gga tcc gag gtg ctg ttc cag ggc ccc aaa tct tgt gac aaa	1152
Leu Asn Gly Ser Glu Val Leu Phe Gln Gly Pro Lys Ser Cys Asp Lys	
370 375 380	

act cac aca tgc cca ccg tgc cca gca cct gaa ctc ctg ggg gga ccg	1200
Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro	
385 390 395 400	
tca gtc ttc ctc ttc ccc cca aaa ccc aag gac acc ctc atg atc tcc	1248
Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser	
405 410 415	
cgg acc cct gag gtc aca tgc gtg gtg gtg gac gtg agc cac gaa gac	1296
Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp	
420 425 430	
cct gag gtc aag ttc aac tgg tac gtg gac ggc gtg gag gtg cat aat	1344
Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn	
435 440 445	
gcc aag aca aag ccg cgg gag gag cag tac aac agc acg tac cgg gtg	1392
Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val	
450 455 460	
gtc agc gtc ctc acc gtc ctg cac cag gac tgg ctg aat ggc aag gag	1440
Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu	
465 470 475 480	
tac aag tgc aag gtc tcc aac aaa gcc ctc cca gcc ccc atc gag aaa	1488
Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys	
485 490 495	
acc atc tcc aaa gcc aaa ggg cag ccc cga gaa cca cag gtg tac acc	1536
Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr	
500 505 510	
ctg ccc cca tcc cgg gat gag ctg acc aag aac cag gtc agc ctg acc	1584
Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr	
515 520 525	
tgc ctg gtc aaa ggc ttc tat ccc agc gac atc gcc gtg gag tgg gag	1632
Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu	
530 535 540	
agc aat ggg cag ccg gag aac aac tac aag acc acg cct ccc gtg ctg	1680
Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu	
545 550 555 560	
gac tcc gac ggc tcc ttc ttc ctc tac agc aag ctc acc gtg gac aag	1728
Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys	
565 570 575	
agc agg tgg cag cag ggg aac gtc ttc tca tgc tcc gtg atg cat gag	1776
Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu	
580 585 590	
gct ctg cac aac cac tac acg cag aag agc ctc tcc ctg tct ccg ggt	1824
Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly	
595 600 605	
aaa	1827
Lys	

<211> 609
 <212> PRT
 <213> Artificial Sequence
 <223> Description of Artificial Sequence: Ig-fusion
 protein

<400> 8

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Met Gln Pro Gln Arg Asp Leu Arg Gly Leu Trp Leu Leu Leu Leu Ser
 1           5           10           15

Val Phe Leu Leu Leu Phe Glu Val Ala Arg Ala Gly Arg Ser Val Val
          20           25           30

Ser Cys Pro Ala Asn Cys Leu Cys Ala Ser Asn Ile Leu Ser Cys Ser
          35           40           45

Lys Gln Gln Leu Pro Asn Val Pro Gln Ser Leu Pro Ser Tyr Thr Ala
 50           55           60

Leu Leu Asp Leu Ser His Asn Asn Leu Ser Arg Leu Arg Ala Glu Trp
 65           70           75           80

Thr Pro Thr Arg Leu Thr Asn Leu His Ser Leu Leu Leu Ser His Asn
          85           90           95

His Leu Asn Phe Ile Ser Ser Glu Ala Phe Val Pro Val Pro Asn Leu
          100          105          110

Arg Tyr Leu Asp Leu Ser Ser Asn His Leu His Thr Leu Asp Glu Phe
          115          120          125

Leu Phe Ser Asp Leu Gln Ala Leu Glu Val Leu Leu Leu Tyr Asn Asn
          130          135          140

His Ile Val Val Val Asp Arg Asn Ala Phe Glu Asp Met Ala Gln Leu
          145          150          155          160

Gln Lys Leu Tyr Leu Ser Gln Asn Gln Ile Ser Arg Phe Pro Val Glu
          165          170          175

Leu Ile Lys Asp Gly Asn Lys Leu Pro Lys Leu Met Leu Leu Asp Leu
          180          185          190

Ser Ser Asn Lys Leu Lys Lys Leu Pro Leu Thr Asp Leu Gln Lys Leu
          195          200          205

Pro Ala Trp Val Lys Asn Gly Leu Tyr Leu His Asn Asn Pro Leu Glu
          210          215          220

Cys Asp Cys Lys Leu Tyr Gln Leu Phe Ser His Trp Gln Tyr Arg Gln
          225          230          235          240

Leu Ser Ser Val Met Asp Phe Gln Glu Asp Leu Tyr Cys Met His Ser
          245          250          255

Lys Lys Leu His Asn Ile Phe Ser Leu Asp Phe Phe Asn Cys Ser Glu
          260          265          270

Tyr Lys Glu Ser Ala Trp Glu Ala His Leu Gly Asp Thr Leu Thr Ile
          275          280          285

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Arg Cys Asp Thr Lys Gln Gln Gly Met Thr Lys Val Trp Val Ser Pro
 290 295 300
 Ser Asn Glu Gln Val Leu Ser Gln Gly Ser Asn Gly Ser Val Ser Val
 305 310 315 320
 Arg Asn Gly Asp Leu Phe Phe Lys Lys Val Gln Val Glu Asp Gly Gly
 325 330 335
 Val Tyr Thr Cys Tyr Ala Met Gly Glu Thr Phe Asn Glu Thr Leu Ser
 340 345 350
 Val Glu Leu Lys Val Tyr Asn Phe Thr Leu His Gly His His Asp Thr
 355 360 365
 Leu Asn Gly Ser Glu Val Leu Phe Gln Gly Pro Lys Ser Cys Asp Lys
 370 375 380
 Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro
 385 390 395 400
 Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser
 405 410 415
 Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp
 420 425 430
 Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn
 435 440 445
 Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val
 450 455 460
 Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu
 465 470 475 480
 Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys
 485 490 495
 Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr
 500 505 510
 Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr
 515 520 525
 Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu
 530 535 540
 Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu
 545 550 555 560
 Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys
 565 570 575
 Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu
 580 585 590
 Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly
 595 600 605

Lys

<210> 9
 <211> 1920
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> Description of Artificial Sequence: Ig-fusion
 protein

<220>
 <221> CDS
 <222> (1)..(1920)

<400> 9
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 Met Ser Leu Arg Phe His Thr Leu Pro Thr Leu Pro Arg Ala Val Lys
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 ccg ggt tgc aga gag ctg ctg tgt ctg ttg gtg atc gca gtg atg gtg 96
 Pro Gly Cys Arg Glu Leu Leu Cys Leu Leu Val Ile Ala Val Met Val
 20 25 30
 agc ccc agc gcc tca gga atg tgc ccc act gct tgc atc tgt gcc acc 144
 Ser Pro Ser Ala Ser Gly Met Cys Pro Thr Ala Cys Ile Cys Ala Thr
 35 40 45
 gac att gtc agc tgc acc aac aaa aac cta tct aag gtg ccc ggg aac 192
 Asp Ile Val Ser Cys Thr Asn Lys Asn Leu Ser Lys Val Pro Gly Asn
 50 55 60
 ctt ttc aga ctg att aaa aga ctg gat ctg agc tat aac aga atc gga 240
 Leu Phe Arg Leu Ile Lys Arg Leu Asp Leu Ser Tyr Asn Arg Ile Gly
 65 70 75 80
 ctg ttg gat gcc gac tgg atc ccg gtg tcg ttt gtc aag ctg agc acc 288
 Leu Leu Asp Ala Asp Trp Ile Pro Val Ser Phe Val Lys Leu Ser Thr
 85 90 95
 tta att ctt cgc cac aac aac atc acc agc atc tcc acg ggc agt ttc 336
 Leu Ile Leu Arg His Asn Asn Ile Thr Ser Ile Ser Thr Gly Ser Phe
 100 105 110
 tcc aca acc cca aat tta aag tgt ctg gac tta tca tcc aat agg ctg 384
 Ser Thr Thr Pro Asn Leu Lys Cys Leu Asp Leu Ser Ser Asn Arg Leu
 115 120 125
 aag tcg gta aag agt gcc aca ttc caa gag ctg aag gct ctg gaa gta 432
 Lys Ser Val Lys Ser Ala Thr Phe Gln Glu Leu Lys Ala Leu Glu Val
 130 135 140
 ctg ctg ctg tac aac aac cac att tcc tat ctg gac ccc gca gcg ttc 480
 Leu Leu Leu Tyr Asn Asn His Ile Ser Tyr Leu Asp Pro Ala Ala Phe
 145 150 155 160
 ggg ggg ctt tcc cac ttg cag aaa ctc tat ctg agt ggg aac ttt ctc 528
 Gly Gly Leu Ser His Leu Gln Lys Leu Tyr Leu Ser Gly Asn Phe Leu
 165 170 175

aca cag ttc cct atg gat ttg tat act ggg agg ttc aag ctg gct gat	576
Thr Gln Phe Pro Met Asp Leu Tyr Thr Gly Arg Phe Lys Leu Ala Asp	
180 185 190	
ctg aca ttt tta gat gtt tcc tat aat cga atc cct tcc ata ccg atg	624
Leu Thr Phe Leu Asp Val Ser Tyr Asn Arg Ile Pro Ser Ile Pro Met	
195 200 205	
cac cat ata aac tta gtg ccg ggg aga cag ctg aga ggc atc tac ctt	672
His His Ile Asn Leu Val Pro Gly Arg Gln Leu Arg Gly Ile Tyr Leu	
210 215 220	
cac ggg aac cca ttt gta tgt gac tgt tct ctg tac tcg ttg ctg atc	720
His Gly Asn Pro Phe Val Cys Asp Cys Ser Leu Tyr Ser Leu Leu Ile	
225 230 235 240	
ttt tgg tac cgt agg cac ttt agc tcc gtg atg gat ttt aag aat gac	768
Phe Trp Tyr Arg Arg His Phe Ser Ser Val Met Asp Phe Lys Asn Asp	
245 250 255	
tat acc tgt cgc ctg tgg tct gac tcc agg cac tcc cac cag ctg cag	816
Tyr Thr Cys Arg Leu Trp Ser Asp Ser Arg His Ser His Gln Leu Gln	
260 265 270	
ctg ctc cag gag agc ttt ctg aac tgt tct tac agc gtt atc aac ggc	864
Leu Leu Gln Glu Ser Phe Leu Asn Cys Ser Tyr Ser Val Ile Asn Gly	
275 280 285	
tcc ttc cac gca ctt ggc ttt atc cac gag gct cag gtt ggg gag agg	912
Ser Phe His Ala Leu Gly Phe Ile His Glu Ala Gln Val Gly Glu Arg	
290 295 300	
gcg atc gtc cac tgt gac agc aag act ggc aat gga aat act gat ttc	960
Ala Ile Val His Cys Asp Ser Lys Thr Gly Asn Gly Asn Thr Asp Phe	
305 310 315 320	
atc tgg gtc ggt ccc gat aac agg ctg ctg gag cca gat aaa gac atg	1008
Ile Trp Val Gly Pro Asp Asn Arg Leu Leu Glu Pro Asp Lys Asp Met	
325 330 335	
ggg aac ttt cgt gtg ttt tac aac gga agt ctg gtc ata gag aac cct	1056
Gly Asn Phe Arg Val Phe Tyr Asn Gly Ser Leu Val Ile Glu Asn Pro	
340 345 350	
ggc ttt gag gac gcc ggg gta tat tct tgt atc gca atg aac agg cag	1104
Gly Phe Glu Asp Ala Gly Val Tyr Ser Cys Ile Ala Met Asn Arg Gln	
355 360 365	
cgg ctg tta aac gag acg gtg gat atc atg atc aac gtg agc aat ttc	1152
Arg Leu Leu Asn Glu Thr Val Asp Ile Met Ile Asn Val Ser Asn Phe	
370 375 380	
acc ata aac aga tcc cac gcc cac gag gcg gcg gcc gcg gat ccc atc	1200
Thr Ile Asn Arg Ser His Ala His Glu Ala Ala Ala Ala Asp Pro Ile	
385 390 395 400	
gaa ggt cgt ggt ggt ggt ggt ggt gat ccc aaa tct tgt gac aaa cct	1248
Glu Gly Arg Gly Gly Gly Gly Gly Asp Pro Lys Ser Cys Asp Lys Pro	
405 410 415	

cac aca tgc cca ccg tgc cca gca cct gaa ctc ctg ggg gga ccg tca 1296
 His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
 420 425 430

gtc ttc ctc ttc ccc cca aaa ccc aag gac acc ctc atg atc tcc cgg 1344
 Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg
 435 440 445

acc cct gag gtc aca tgc gtg gtg gtg gac gtg agc cac gaa gac cct 1392
 Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
 450 455 460

gag gtc aag ttc aac tgg tac gtg gac ggc gtg gag gtg cat aat gcc 1440
 Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala
 465 470 475 480

aag aca aag ccg cgg gag gag cag tac aac agc acg tac cgg gtg gtc 1488
 Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val
 485 490 495

agc gtc ctc acc gtc ctg cac cag gac tgg ctg aat ggc aag gag tac 1536
 Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
 500 505 510

aag tgc aag gtc tcc aac aaa gcc ctc cca gcc ccc atc gag aaa acc 1584
 Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr
 515 520 525

atc tcc aaa gcc aaa ggg cag ccc cga gaa cca cag gtg tac acc ctg 1632
 Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu
 530 535 540

ccc cca tcc ccg gat gag ctg acc aag aac cag gtc agc ctg acc tgc 1680
 Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys
 545 550 555 560

ctg gtc aaa ggc ttc tat ccc agc gac atc gcc gtg gag tgg gag agc 1728
 Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
 565 570 575

aat ggg cag ccg gag aac aac tac aag acc acg cct ccc gtg ctg gac 1776
 Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
 580 585 590

tcc gac ggc tcc ttc ttc ctc tac agc aag ctc acc gtg gac aag agc 1824
 Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser
 595 600 605

agg tgg cag cag ggg aac gtc ttc tca tgc tcc gtg atg cat gag gct 1872
 Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala
 610 615 620

ctg cac aac cac tac acg cag aag agc ctc tcc ctg tct ccg ggt aaa 1920
 Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 625 630 635 640

<210> 10

<211> 640

<212> PRT

<213> Artificial Sequence

<223> Description of Artificial Sequence: Ig-fusion protein

<400> 10

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Pro Gly Cys Arg Glu Leu Leu Cys Leu Leu Val Ile Ala Val Met Val
      20              25              30

Ser Pro Ser Ala Ser Gly Met Cys Pro Thr Ala Cys Ile Cys Ala Thr
      35              40              45

Asp Ile Val Ser Cys Thr Asn Lys Asn Leu Ser Lys Val Pro Gly Asn
 50              55              60

Leu Phe Arg Leu Ile Lys Arg Leu Asp Leu Ser Tyr Asn Arg Ile Gly
 65              70              75              80

Leu Leu Asp Ala Asp Trp Ile Pro Val Ser Phe Val Lys Leu Ser Thr
      85              90              95

Leu Ile Leu Arg His Asn Asn Ile Thr Ser Ile Ser Thr Gly Ser Phe
 100              105              110

Ser Thr Thr Pro Asn Leu Lys Cys Leu Asp Leu Ser Ser Asn Arg Leu
 115              120              125

Lys Ser Val Lys Ser Ala Thr Phe Gln Glu Leu Lys Ala Leu Glu Val
 130              135              140

Leu Leu Leu Tyr Asn Asn His Ile Ser Tyr Leu Asp Pro Ala Ala Phe
 145              150              155              160

Gly Gly Leu Ser His Leu Gln Lys Leu Tyr Leu Ser Gly Asn Phe Leu
      165              170              175

Thr Gln Phe Pro Met Asp Leu Tyr Thr Gly Arg Phe Lys Leu Ala Asp
 180              185              190

Leu Thr Phe Leu Asp Val Ser Tyr Asn Arg Ile Pro Ser Ile Pro Met
 195              200              205

His His Ile Asn Leu Val Pro Gly Arg Gln Leu Arg Gly Ile Tyr Leu
 210              215              220

His Gly Asn Pro Phe Val Cys Asp Cys Ser Leu Tyr Ser Leu Leu Ile
 225              230              235              240

Phe Trp Tyr Arg Arg His Phe Ser Ser Val Met Asp Phe Lys Asn Asp
      245              250              255

Tyr Thr Cys Arg Leu Trp Ser Asp Ser Arg His Ser His Gln Leu Gln
 260              265              270

Leu Leu Gln Glu Ser Phe Leu Asn Cys Ser Tyr Ser Val Ile Asn Gly
 275              280              285

Ser Phe His Ala Leu Gly Phe Ile His Glu Ala Gln Val Gly Glu Arg
 290              295              300

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Ala Ile Val His Cys Asp Ser Lys Thr Gly Asn Gly Asn Thr Asp Phe
 305 310 315 320
 Ile Trp Val Gly Pro Asp Asn Arg Leu Leu Glu Pro Asp Lys Asp Met
 325 330 335
 Gly Asn Phe Arg Val Phe Tyr Asn Gly Ser Leu Val Ile Glu Asn Pro
 340 345 350
 Gly Phe Glu Asp Ala Gly Val Tyr Ser Cys Ile Ala Met Asn Arg Gln
 355 360 365
 Arg Leu Leu Asn Glu Thr Val Asp Ile Met Ile Asn Val Ser Asn Phe
 370 375 380
 Thr Ile Asn Arg Ser His Ala His Glu Ala Ala Ala Asp Pro Ile
 385 390 395 400
 Glu Gly Arg Gly Gly Gly Gly Gly Asp Pro Lys Ser Cys Asp Lys Pro
 405 410 415
 His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu Leu Gly Gly Pro Ser
 420 425 430
 Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile Ser Arg
 435 440 445
 Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu Asp Pro
 450 455 460
 Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His Asn Ala
 465 470 475 480
 Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg Val Val
 485 490 495
 Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys Glu Tyr
 500 505 510
 Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu Lys Thr
 515 520 525
 Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr Thr Leu
 530 535 540
 Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln Val Ser Leu Thr Cys
 545 550 555 560
 Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp Glu Ser
 565 570 575
 Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val Leu Asp
 580 585 590
 Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp Lys Ser
 595 600 605
 Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His Glu Ala
 610 615 620

Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro Gly Lys
 625 630 635 640

<210> 11

<211> 1887

<212> DNA

<213> Artificial Sequence

<220> -

<223> Description of Artificial Sequence: Ig-fusion protein

<220>

<221> CDS

<222> (1)..(1887)

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Met Ala Trp Leu Val Leu Ser Gly Ile Leu Leu Cys Met Leu Gly Ala	
1 5 10 15	
gga ttg ggc act tca gac ttg gag gat gtt ctg cct cct gct ccc cac	96
Gly Leu Gly Thr Ser Asp Leu Glu Asp Val Leu Pro Pro Ala Pro His	
20 25 30	
aac tgc ccc gat ata tgc atc tgt gct gcc gat gtg ttg agc tgt gcg	144
Asn Cys Pro Asp Ile Cys Ile Cys Ala Ala Asp Val Leu Ser Cys Ala	
35 40 45	
ggc cgt ggg tta cag gac ttg ccg gta gca ctg cct acc act gct gca	192
Gly Arg Gly Leu Gln Asp Leu Pro Val Ala Leu Pro Thr Thr Ala Ala	
50 55 60	
gaa ctc gat ttg agc cac aac gca ctc aaa cgc ctg cac ccg ggg tgg	240
Glu Leu Asp Leu Ser His Asn Ala Leu Lys Arg Leu His Pro Gly Trp	
65 70 75 80	
tta gcg ccc ctc tcc cgg ctg cgt gcc ttg cac cta ggc tat aat aag	288
Leu Ala Pro Leu Ser Arg Leu Arg Ala Leu His Leu Gly Tyr Asn Lys	
85 90 95	
ctg gaa gtc ctg ggc cat ggt gcg ttc acc aat gcc agt ggc ctg agg	336
Leu Glu Val Leu Gly His Gly Ala Phe Thr Asn Ala Ser Gly Leu Arg	
100 105 110	
aca ctt gac ctg tcc tct aat atg tta agg atg ctc cat acc cat gac	384
Thr Leu Asp Leu Ser Ser Asn Met Leu Arg Met Leu His Thr His Asp	
115 120 125	
ctg gat ggc ctg gag gag ctg gag aag tta ctt ctg ttc aat aac agc	432
Leu Asp Gly Leu Glu Glu Leu Glu Lys Leu Leu Leu Phe Asn Asn Ser	
130 135 140	
ctg atg cac ttg gac ctg gat gcc ttc cag ggc ctg cgc atg ctt agc	480
Leu Met His Leu Asp Leu Asp Ala Phe Gln Gly Leu Arg Met Leu Ser	
145 150 155 160	
cac ctc tat ctc agc tgc aac gag ctc tcc tct ttc tct ttc aac cac	528
His Leu Tyr Leu Ser Cys Asn Glu Leu Ser Ser Phe Ser Phe Asn His	

165	170	175	
ttg cac ggt ctg ggg tta acc cgc ctg cgg act ctg gac ctc tcc tcc Leu His Gly Leu Gly Leu Thr Arg Leu Arg Thr Leu Asp Leu Ser Ser 180 185 190			576
aac tgg ctg aaa cat atc tcc atc cct gag ttg gct gca ctg cca act Asn Trp Leu Lys His Ile Ser Ile Pro Glu Leu Ala Ala Leu Pro Thr 195 200 205			624
tat ctc aag aac agg ctc tac ctg cac aac aac ccg ctg ccc tgt gac Tyr Leu Lys Asn Arg Leu Tyr Leu His Asn Asn Pro Leu Pro Cys Asp 210 215 220			672
tgc agc ctc tac cac ctg ctc cgg cgc tgg cac cag cgg ggc ctg agt Cys Ser Leu Tyr His Leu Leu Arg Arg Trp His Gln Arg Gly Leu Ser 225 230 235 240			720
gcc ctg cat gat ttt gaa cgc gag tac aca tgc ttg gtc ttt aag gtg Ala Leu His Asp Phe Glu Arg Glu Tyr Thr Cys Leu Val Phe Lys Val 245 250 255			768
tca gag tcc cga gtg cgc ttt ttt gag cac agc cgg gtc ttc aag aac Ser Glu Ser Arg Val Arg Phe Phe Glu His Ser Arg Val Phe Lys Asn 260 265 270			816
tgc tct gtg gct gca gct cca ggc tta gag ctg cct gaa gag cag ctg Cys Ser Val Ala Ala Ala Pro Gly Leu Glu Leu Pro Glu Glu Gln Leu 275 280 285			864
cac gcg cag gtg ggc cag tcc ctg agg ctc ttc tgc aac acc agt gtg His Ala Gln Val Gly Gln Ser Leu Arg Leu Phe Cys Asn Thr Ser Val 290 295 300			912
cct gcc act cgg gtg gcc tgg gtc tcc ccg aag aat gag ctg ctt gtg Pro Ala Thr Arg Val Ala Trp Val Ser Pro Lys Asn Glu Leu Leu Val 305 310 315 320			960
gcg cca gcc tct cag gat ggt agc atc gct gtg ttg gct gat ggc agc Ala Pro Ala Ser Gln Asp Gly Ser Ile Ala Val Leu Ala Asp Gly Ser 325 330 335			1008
tta gcc ata ggc agg gtg caa gag cag cac gca ggc gtc ttt gtg tgc Leu Ala Ile Gly Arg Val Gln Glu Gln His Ala Gly Val Phe Val Cys 340 345 350			1056
ctg gcc agt ggg ccc cgc ctg cac cac aac cag aca ctt gag tac aat Leu Ala Ser Gly Pro Arg Leu His His Asn Gln Thr Leu Glu Tyr Asn 355 360 365			1104
gtg agt gtg caa aag gct cgc ccc gag cca gag act ttc aac aca gcg Val Ser Val Gln Lys Ala Arg Pro Glu Pro Glu Thr Phe Asn Thr Ala 370 375 380			1152
gcc gcg gat ccc atc gaa ggt cgt ggt ggt ggt ggt ggt gat ccc aaa Ala Ala Asp Pro Ile Glu Gly Arg Gly Gly Gly Gly Gly Asp Pro Lys 385 390 395 400			1200
tct tgt gac aaa cct cac aca tgc cca ccg tgc cca gca cct gaa ctc Ser Cys Asp Lys Pro His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu			1248

405	410	415	
ctg ggg gga ccg tca gtc ttc ctc ttc ccc cca aaa ccc aag gac acc Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr 420 425 430			1296
ctc atg atc tcc cgg acc cct gag gtc aca tgc gtg gtg gtg gac gtg Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val 435 440 445			1344
agc cac gaa gac cct gag gtc aag ttc aac tgg tac gtg gac ggc gtg Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val 450 455 460			1392
gag gtg cat aat gcc aag aca aag ccg cgg gag gag cag tac aac agc Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser 465 470 475 480			1440
acg tac cgg gtg gtc agc gtc ctc acc gtc ctg cac cag gac tgg ctg Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu 485 490 495			1488
aat ggc aag gag tac aag tgc aag gtc tcc aac aaa gcc ctc cca gcc Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala 500 505 510			1536
ccc atc gag aaa acc atc tcc aaa gcc aaa ggg cag ccc cga gaa cca Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro 515 520 525			1584
cag gtg tac acc ctg ccc cca tcc cgg gat gag ctg acc aag aac cag Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln 530 535 540			1632
gtc agc ctg acc tgc ctg gtc aaa ggc ttc tat ccc agc gac atc gcc Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala 545 550 555 560			1680
gtg gag tgg gag agc aat ggg cag ccg gag aac aac tac aag acc acg Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr 565 570 575			1728
cct ccc gtg ctg gac tcc gac ggc tcc ttc ttc ctc tac agc aag ctc Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu 580 585 590			1776
acc gtg gac aag agc agg tgg cag cag ggg aac gtc ttc tca tgc tcc Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser 595 600 605			1824
gtg atg cat gag gct ctg cac aac cac tac acg cag aag agc ctc tcc Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser 610 615 620			1872
ctg tct ccg ggt aaa Leu Ser Pro Gly Lys 625			1887

<210> 12

<211> 629
 <212> PRT
 <213> Artificial Sequence
 <223> Description of Artificial Sequence: Ig-fusion
 protein

<400> 12

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Met Ala Trp Leu Val Leu Ser Gly Ile Leu Leu Cys Met Leu Gly Ala
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Gly Leu Gly Thr Ser Asp Leu Glu Asp Val Leu Pro Pro Ala Pro His
      20              25              30

Asn Cys Pro Asp Ile Cys Ile Cys Ala Ala Asp Val Leu Ser Cys Ala
      35              40              45

Gly Arg Gly Leu Gln Asp Leu Pro Val Ala Leu Pro Thr Thr Ala Ala
      50              55              60

Glu Leu Asp Leu Ser His Asn Ala Leu Lys Arg Leu His Pro Gly Trp
      65              70              75              80

Leu Ala Pro Leu Ser Arg Leu Arg Ala Leu His Leu Gly Tyr Asn Lys
      85              90              95

Leu Glu Val Leu Gly His Gly Ala Phe Thr Asn Ala Ser Gly Leu Arg
      100             105             110

Thr Leu Asp Leu Ser Ser Asn Met Leu Arg Met Leu His Thr His Asp
      115             120             125

Leu Asp Gly Leu Glu Glu Leu Glu Lys Leu Leu Leu Phe Asn Asn Ser
      130             135             140

Leu Met His Leu Asp Leu Asp Ala Phe Gln Gly Leu Arg Met Leu Ser
      145             150             155             160

His Leu Tyr Leu Ser Cys Asn Glu Leu Ser Ser Phe Ser Phe Asn His
      165             170             175

Leu His Gly Leu Gly Leu Thr Arg Leu Arg Thr Leu Asp Leu Ser Ser
      180             185             190

Asn Trp Leu Lys His Ile Ser Ile Pro Glu Leu Ala Ala Leu Pro Thr
      195             200             205

Tyr Leu Lys Asn Arg Leu Tyr Leu His Asn Asn Pro Leu Pro Cys Asp
      210             215             220

Cys Ser Leu Tyr His Leu Leu Arg Arg Trp His Gln Arg Gly Leu Ser
      225             230             235             240

Ala Leu His Asp Phe Glu Arg Glu Tyr Thr Cys Leu Val Phe Lys Val
      245             250             255

Ser Glu Ser Arg Val Arg Phe Phe Glu His Ser Arg Val Phe Lys Asn
      260             265             270

Cys Ser Val Ala Ala Ala Pro Gly Leu Glu Leu Pro Glu Glu Gln Leu
      275             280             285

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His Ala Gln Val Gly Gln Ser Leu Arg Leu Phe Cys Asn Thr Ser Val
 290 295 300
 Pro Ala Thr Arg Val Ala Trp Val Ser Pro Lys Asn Glu Leu Leu Val
 305 310 315 320
 Ala Pro Ala Ser Gln Asp Gly Ser Ile Ala Val Leu Ala Asp Gly Ser
 325 330 335
 Leu Ala Ile Gly Arg Val Gln Glu Gln His Ala Gly Val Phe Val Cys
 340 345 350
 Leu Ala Ser Gly Pro Arg Leu His His Asn Gln Thr Leu Glu Tyr Asn
 355 360 365
 Val Ser Val Gln Lys Ala Arg Pro Glu Pro Glu Thr Phe Asn Thr Ala
 370 375 380
 Ala Ala Asp Pro Ile Glu Gly Arg Gly Gly Gly Gly Asp Pro Lys
 385 390 395 400
 Ser Cys Asp Lys Pro His Thr Cys Pro Pro Cys Pro Ala Pro Glu Leu
 405 410 415
 Leu Gly Gly Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr
 420 425 430
 Leu Met Ile Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val
 435 440 445
 Ser His Glu Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val
 450 455 460
 Glu Val His Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser
 465 470 475 480
 Thr Tyr Arg Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu
 485 490 495
 Asn Gly Lys Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala
 500 505 510
 Pro Ile Glu Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro
 515 520 525
 Gln Val Tyr Thr Leu Pro Pro Ser Arg Asp Glu Leu Thr Lys Asn Gln
 530 535 540
 Val Ser Leu Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala
 545 550 555 560
 Val Glu Trp Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr
 565 570 575
 Pro Pro Val Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu
 580 585 590
 Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser
 595 600 605
 Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser

610

615

620

Leu Ser Pro Gly Lys
625

<210> 13

<211> 1476

<212> DNA

<213> Mus musculus

<220>

<221> CDS

<222> (1)..(1476)

<400> 13

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Met	Gln	Pro	Gln	Arg	Asp	Leu	Arg	Gly	Leu	Trp	Leu	Leu	Leu	Leu	Ser	
1				5				10						15		

gtg	ttc	ctg	ctt	ctc	ttt	gag	gta	gcc	agg	gcc	ggc	cga	tct	gtg	gtt	96
Val	Phe	Leu	Leu	Leu	Phe	Glu	Val	Ala	Arg	Ala	Gly	Arg	Ser	Val	Val	
			20					25					30			

agt	tgt	ccc	gcc	aac	tgc	ctg	tgc	gcc	agc	aac	atc	ctc	agc	tgc	tcc	144
Ser	Cys	Pro	Ala	Asn	Cys	Leu	Cys	Ala	Ser	Asn	Ile	Leu	Ser	Cys	Ser	
		35					40					45				

aag	cag	cag	ctg	ccc	aat	gtg	ccc	caa	tct	ttg	ccc	agc	tac	aca	gca	192
Lys	Gln	Gln	Leu	Pro	Asn	Val	Pro	Gln	Ser	Leu	Pro	Ser	Tyr	Thr	Ala	
	50					55					60					

ctg	ctg	gac	ctc	agc	cac	aac	aac	ttg	agc	agg	ctg	cgg	gcc	gag	tgg	240
Leu	Leu	Asp	Leu	Ser	His	Asn	Asn	Leu	Ser	Arg	Leu	Arg	Ala	Glu	Trp	
65					70				75					80		

acc	ccc	acc	cgg	ctg	acc	aac	ctg	cac	tcc	ctg	ctg	ctg	agc	cac	aac	288
Thr	Pro	Thr	Arg	Leu	Thr	Asn	Leu	His	Ser	Leu	Leu	Leu	Ser	His	Asn	
				85				90						95		

cac	ctg	aac	ttc	atc	tcc	tcc	gag	gcc	ttc	gtc	ccc	gta	ccc	aac	ctt	336
His	Leu	Asn	Phe	Ile	Ser	Ser	Glu	Ala	Phe	Val	Pro	Val	Pro	Asn	Leu	
			100					105					110			

agg	tac	ttg	gac	ctc	tcc	tcc	aac	cat	ctt	cac	acg	ctg	gat	gag	ttc	384
Arg	Tyr	Leu	Asp	Leu	Ser	Ser	Asn	His	Leu	His	Thr	Leu	Asp	Glu	Phe	
		115					120					125				

ctg	ttc	agc	gac	ctg	cag	gcg	ctg	gaa	gtg	ctg	ttg	ctc	tac	aat	aac	432
Leu	Phe	Ser	Asp	Leu	Gln	Ala	Leu	Glu	Val	Leu	Leu	Leu	Tyr	Asn	Asn	
	130					135					140					

cac	att	gtg	gtg	gtg	gac	cgg	aat	gcc	ttt	gag	gac	atg	gcc	cag	ctg	480
His	Ile	Val	Val	Val	Asp	Arg	Asn	Ala	Phe	Glu	Asp	Met	Ala	Gln	Leu	
145					150					155					160	

cag	aaa	ctc	tac	tta	agc	cag	aat	cag	atc	tct	cgc	ttt	cct	gtg	gaa	528
Gln	Lys	Leu	Tyr	Leu	Ser	Gln	Asn	Gln	Ile	Ser	Arg	Phe	Pro	Val	Glu	
				165					170						175	

ctg atc aag gat ggg aac aaa tta ccc aaa ctg atg ctc ttg gat ctg	576
Leu Ile Lys Asp Gly Asn Lys Leu Pro Lys Leu Met Leu Leu Asp Leu	
180 185 190	
tcc tcc aac aag ctg aag aag ttg ccc ctg act gac ctg cag aaa ttg	624
Ser Ser Asn Lys Leu Lys Lys Leu Pro Leu Thr Asp Leu Gln Lys Leu	
195 200 205	
cca gcc tgg gtc aag aat ggg cta tac ctg cat aac aac ccc ttg gag	672
Pro Ala Trp Val Lys Asn Gly Leu Tyr Leu His Asn Asn Pro Leu Glu	
210 215 220	
tgc gac tgc aag ctc tac cag ctc ttt tcg cac tgg cag tac cgg cag	720
Cys Asp Cys Lys Leu Tyr Gln Leu Phe Ser His Trp Gln Tyr Arg Gln	
225 230 235 240	
ctg agc tct gtg atg gac ttc cag gag gac ctg tac tgc atg cac tcc	768
Leu Ser Ser Val Met Asp Phe Gln Glu Asp Leu Tyr Cys Met His Ser	
245 250 255	
aag aag ctg cac aac atc ttc agc ctg gat ttc ttc aat tgc agc gag	816
Lys Lys Leu His Asn Ile Phe Ser Leu Asp Phe Phe Asn Cys Ser Glu	
260 265 270	
tac aag gaa agt gcc tgg gag gct cac ctg gga gac acc ttg acc atc	864
Tyr Lys Glu Ser Ala Trp Glu Ala His Leu Gly Asp Thr Leu Thr Ile	
275 280 285	
agg tgt gac acc aaa cag caa ggc atg acc aaa gtg tgg gtg tcc cca	912
Arg Cys Asp Thr Lys Gln Gln Gly Met Thr Lys Val Trp Val Ser Pro	
290 295 300	
agc aat gaa cag gtg cta agt cag ggg tcc aat ggc tcg gtg agc gtg	960
Ser Asn Glu Gln Val Leu Ser Gln Gly Ser Asn Gly Ser Val Ser Val	
305 310 315 320	
agg aat ggc gac ctt ttt ttt aaa aag gtg cag gtc gag gat ggg ggt	1008
Arg Asn Gly Asp Leu Phe Phe Lys Lys Val Gln Val Glu Asp Gly Gly	
325 330 335	
gtg tat acc tgt tac gcc atg ggg gag act ttc aac gag aca ctg tct	1056
Val Tyr Thr Cys Tyr Ala Met Gly Glu Thr Phe Asn Glu Thr Leu Ser	
340 345 350	
gtg gag ttg aaa gtg tat aac ttc acc ttg cac gga cac cat gac acc	1104
Val Glu Leu Lys Val Tyr Asn Phe Thr Leu His Gly His His Asp Thr	
355 360 365	
ctc aac aca gcc tac act acc ctg gtg ggc tgt atc ctc agt gtg gtt	1152
Leu Asn Thr Ala Tyr Thr Thr Leu Val Gly Cys Ile Leu Ser Val Val	
370 375 380	
ctg gtc ctc ata tac ttg tac ctc acc cct tgc cgc tgc tgg tgt cgg	1200
Leu Val Leu Ile Tyr Leu Tyr Leu Thr Pro Cys Arg Cys Trp Cys Arg	
385 390 395 400	
ggg gtg gag aaa cct tcc agc cac caa gga gat agc ctc agc tct tct	1248
Gly Val Glu Lys Pro Ser Ser His Gln Gly Asp Ser Leu Ser Ser Ser	
405 410 415	

atg ctc agt acc aca ccc aac cac gac cct atg gct ggt ggg gac aaa 1296
 Met Leu Ser Thr Thr Pro Asn His Asp Pro Met Ala Gly Gly Asp Lys
 420 425 430

gat gat ggt ttt gac cgg cgg gtg gcc ttc ctg gaa cct gct gga ccc 1344
 Asp Asp Gly Phe Asp Arg Arg Val Ala Phe Leu Glu Pro Ala Gly Pro
 435 440 445

ggg cag ggt caa aat ggc aaa ctc aag cca ggc aac act ctg ccg gtg 1392
 Gly Gln Gly Gln Asn Gly Lys Leu Lys Pro Gly Asn Thr Leu Pro Val
 450 455 460

ccc gaa gct aca ggc aag ggc caa cgg agg atg tcc gat cca gag tcg 1440
 Pro Glu Ala Thr Gly Lys Gly Gln Arg Arg Met Ser Asp Pro Glu Ser
 465 470 475 480

gtc agc tcg gtc ttt tct gat aca ccc att gtg gtg 1476
 Val Ser Ser Val Phe Ser Asp Thr Pro Ile Val Val
 485 490

<210> 14
 <211> 492
 <212> PRT
 <213> Mus musculus

<400> 14
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Ser Cys Pro Ala Asn Cys Leu Cys Ala Ser Asn Ile Leu Ser Cys Ser
 35 40 45

Lys Gln Gln Leu Pro Asn Val Pro Gln Ser Leu Pro Ser Tyr Thr Ala
 50 55 60

Leu Leu Asp Leu Ser His Asn Asn Leu Ser Arg Leu Arg Ala Glu Trp
 65 70 75 80

Thr Pro Thr Arg Leu Thr Asn Leu His Ser Leu Leu Leu Ser His Asn
 85 90 95

His Leu Asn Phe Ile Ser Ser Glu Ala Phe Val Pro Val Pro Asn Leu
 100 105 110

Arg Tyr Leu Asp Leu Ser Ser Asn His Leu His Thr Leu Asp Glu Phe
 115 120 125

Leu Phe Ser Asp Leu Gln Ala Leu Glu Val Leu Leu Leu Tyr Asn Asn
 130 135 140

His Ile Val Val Val Asp Arg Asn Ala Phe Glu Asp Met Ala Gln Leu
 145 150 155 160

Gln Lys Leu Tyr Leu Ser Gln Asn Gln Ile Ser Arg Phe Pro Val Glu
 165 170 175

Leu Ile Lys Asp Gly Asn Lys Leu Pro Lys Leu Met Leu Leu Asp Leu

180				185				190							
Ser	Ser	Asn	Lys	Leu	Lys	Lys	Leu	Pro	Leu	Thr	Asp	Leu	Gln	Lys	Leu
		195					200					205			
Pro	Ala	Trp	Val	Lys	Asn	Gly	Leu	Tyr	Leu	His	Asn	Asn	Pro	Leu	Glu
	210					215					220				
Cys	Asp	Cys	Lys	Leu	Tyr	Gln	Leu	Phe	Ser	His	Trp	Gln	Tyr	Arg	Gln
225					230					235					240
Leu	Ser	Ser	Val	Met	Asp	Phe	Gln	Glu	Asp	Leu	Tyr	Cys	Met	His	Ser
			245						250					255	
Lys	Lys	Leu	His	Asn	Ile	Phe	Ser	Leu	Asp	Phe	Phe	Asn	Cys	Ser	Glu
		260							265					270	
Tyr	Lys	Glu	Ser	Ala	Trp	Glu	Ala	His	Leu	Gly	Asp	Thr	Leu	Thr	Ile
		275					280					285			
Arg	Cys	Asp	Thr	Lys	Gln	Gln	Gly	Met	Thr	Lys	Val	Trp	Val	Ser	Pro
		290				295					300				
Ser	Asn	Glu	Gln	Val	Leu	Ser	Gln	Gly	Ser	Asn	Gly	Ser	Val	Ser	Val
305					310					315					320
Arg	Asn	Gly	Asp	Leu	Phe	Phe	Lys	Lys	Val	Gln	Val	Glu	Asp	Gly	Gly
			325						330					335	
Val	Tyr	Thr	Cys	Tyr	Ala	Met	Gly	Glu	Thr	Phe	Asn	Glu	Thr	Leu	Ser
			340						345					350	
Val	Glu	Leu	Lys	Val	Tyr	Asn	Phe	Thr	Leu	His	Gly	His	His	Asp	Thr
		355					360							365	
Leu	Asn	Thr	Ala	Tyr	Thr	Thr	Leu	Val	Gly	Cys	Ile	Leu	Ser	Val	Val
		370				375					380				
Leu	Val	Leu	Ile	Tyr	Leu	Tyr	Leu	Thr	Pro	Cys	Arg	Cys	Trp	Cys	Arg
385					390					395					400
Gly	Val	Glu	Lys	Pro	Ser	Ser	His	Gln	Gly	Asp	Ser	Leu	Ser	Ser	Ser
			405						410					415	
Met	Leu	Ser	Thr	Thr	Pro	Asn	His	Asp	Pro	Met	Ala	Gly	Gly	Asp	Lys
			420						425					430	
Asp	Asp	Gly	Phe	Asp	Arg	Arg	Val	Ala	Phe	Leu	Glu	Pro	Ala	Gly	Pro
		435					440							445	
Gly	Gln	Gly	Gln	Asn	Gly	Lys	Leu	Lys	Pro	Gly	Asn	Thr	Leu	Pro	Val
	450					455					460				
Pro	Glu	Ala	Thr	Gly	Lys	Gly	Gln	Arg	Arg	Met	Ser	Asp	Pro	Glu	Ser
465					470					475					480
Val	Ser	Ser	Val	Phe	Ser	Asp	Thr	Pro	Ile	Val	Val				
			485						490						

<210> 15
 <211> 1557
 <212> DNA
 <213> Mus musculus

<220>
 <221> CDS
 <222> (1)..(1557)

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 Met Ser Leu Arg Phe His Thr Leu Pro Thr Leu Pro Arg Ala Val Lys
 1 5 10 15

ccg ggt tgc aga gag ctg ctg tgt ctg ttg gtg atc gca gtg atg gtg 96
 Pro Gly Cys Arg Glu Leu Leu Cys Leu Leu Val Ile Ala Val Met Val
 20 25 30

agc ccc agc gcc tca gga atg tgc ccc act gct tgc atc tgt gcc acc 144
 Ser Pro Ser Ala Ser Gly Met Cys Pro Thr Ala Cys Ile Cys Ala Thr
 35 40 45

gac att gtc agc tgc acc aac aaa aac cta tct aag gtg ccc ggg aac 192
 Asp Ile Val Ser Cys Thr Asn Lys Asn Leu Ser Lys Val Pro Gly Asn
 50 55 60

ctt ttc aga ctg att aaa aga ctg gat ctg agc tat aac aga atc gga 240
 Leu Phe Arg Leu Ile Lys Arg Leu Asp Leu Ser Tyr Asn Arg Ile Gly
 65 70 75 80

ctg ttg gat gcc gac tgg atc ccg gtg tgc ttt gtc aag ctg agc acc 288
 Leu Leu Asp Ala Asp Trp Ile Pro Val Ser Phe Val Lys Leu Ser Thr
 85 90 95

tta att ctt cgc cac aac aac atc acc agc atc tcc acg ggc agt ttc 336
 Leu Ile Leu Arg His Asn Asn Ile Thr Ser Ile Ser Thr Gly Ser Phe
 100 105 110

tcc aca acc cca aat tta aag tgt ctg gac tta tca tcc aat agg ctg 384
 Ser Thr Thr Pro Asn Leu Lys Cys Leu Asp Leu Ser Ser Asn Arg Leu
 115 120 125

aag tct gta aag agt gcc aca ttc caa gag ctg aag gct ctg gaa gta 432
 Lys Ser Val Lys Ser Ala Thr Phe Gln Glu Leu Lys Ala Leu Glu Val
 130 135 140

ctg ctg ctg tac aac aac cac att tcc tat ctg gac ccc gca gcg ttc 480
 Leu Leu Leu Tyr Asn Asn His Ile Ser Tyr Leu Asp Pro Ala Ala Phe
 145 150 155 160

ggg ggg ctt tcc cac ttg cag aaa ctc tat ctg agt ggg aac ttt ctc 528
 Gly Gly Leu Ser His Leu Gln Lys Leu Tyr Leu Ser Gly Asn Phe Leu
 165 170 175

aca cag ttc cct atg gat ttg tat act ggg agg ttc aag ctg gct gat 576
 Thr Gln Phe Pro Met Asp Leu Tyr Thr Gly Arg Phe Lys Leu Ala Asp
 180 185 190

ctg aca ttt tta gat gtt tcc tat aat cga atc cct tcc ata ccg atg 624
 Leu Thr Phe Leu Asp Val Ser Tyr Asn Arg Ile Pro Ser Ile Pro Met
 195 200 205

cac cat ata aac tta gtg ccg ggg aga cag ctg aga ggc atc tac ctt	672
His His Ile Asn Leu Val Pro Gly Arg Gln Leu Arg Gly Ile Tyr Leu	
210 215 220	
cac ggg aac cca ttt gta tgt gac tgt tct ctg tac tcg ttg ctg atc	720
His Gly Asn Pro Phe Val Cys Asp Cys Ser Leu Tyr Ser Leu Leu Ile	
225 230 235 240	
ttt tgg tac cgt agg cac ttt agc tcc gtg atg gat ttt aag aat gac	768
Phe Trp Tyr Arg Arg His Phe Ser Ser Val Met Asp Phe Lys Asn Asp	
245 250 255	
tat acc tgt cgc ctg tgg tct gac tcc agg cac tcc cac cag ctg cag	816
Tyr Thr Cys Arg Leu Trp Ser Asp Ser Arg His Ser His Gln Leu Gln	
260 265 270	
ctg ctc cag gag agc ttt ctg aac tgt tct tac agc gtt atc aac ggc	864
Leu Leu Gln Glu Ser Phe Leu Asn Cys Ser Tyr Ser Val Ile Asn Gly	
275 280 285	
tcc ttc cac gca ctt ggc ttt atc cac gag gct cag gtt ggg gag agg	912
Ser Phe His Ala Leu Gly Phe Ile His Glu Ala Gln Val Gly Glu Arg	
290 295 300	
gcg atc gtc cac tgt gac agc aag act ggc aat gga aat act gat ttc	960
Ala Ile Val His Cys Asp Ser Lys Thr Gly Asn Gly Asn Thr Asp Phe	
305 310 315 320	
atc tgg gtc ggt ccc gat aac agg ctg ctg gag cca gat aaa gac atg	1008
Ile Trp Val Gly Pro Asp Asn Arg Leu Leu Glu Pro Asp Lys Asp Met	
325 330 335	
ggg aac ttt cgt gtg ttt tac aac gga agt ctg gtc ata gag aac cct	1056
Gly Asn Phe Arg Val Phe Tyr Asn Gly Ser Leu Val Ile Glu Asn Pro	
340 345 350	
ggc ttt gag gac gcc ggg gta tat tct tgt atc gca atg aac agg cag	1104
Gly Phe Glu Asp Ala Gly Val Tyr Ser Cys Ile Ala Met Asn Arg Gln	
355 360 365	
cgg ctg tta aac gag acg gtg gat atc atg atc aac gtg agc aat ttc	1152
Arg Leu Leu Asn Glu Thr Val Asp Ile Met Ile Asn Val Ser Asn Phe	
370 375 380	
acc ata aac aga tcc cac gcc cac gag gcg ttt aac acg gcc ttt acc	1200
Thr Ile Asn Arg Ser His Ala His Glu Ala Phe Asn Thr Ala Phe Thr	
385 390 395 400	
acc ctg gct gcc tgc gtg gcc agt ata gtt cta gtg cta ctg tat ctg	1248
Thr Leu Ala Ala Cys Val Ala Ser Ile Val Leu Val Leu Leu Tyr Leu	
405 410 415	
tac ctg acg ccg tgc cca tgc aaa tgc aaa gcc aag aga cag aaa aac	1296
Tyr Leu Thr Pro Cys Pro Cys Lys Cys Lys Ala Lys Arg Gln Lys Asn	
420 425 430	
acg ctg agc caa agc agt gcc cac tcg tcc att ctc agt cct ggc ccc	1344
Thr Leu Ser Gln Ser Ser Ala His Ser Ser Ile Leu Ser Pro Gly Pro	
435 440 445	

act ggc gat gcc tct gct gac gat cgg aag gca ggt aaa aga gtc gtg 1392
 Thr Gly Asp Ala Ser Ala Asp Asp Arg Lys Ala Gly Lys Arg Val Val
 450 455 460

ttt ctg gag ccc ctg aag gac acg gcg gcc gga cag aat ggc aaa gtc 1440
 Phe Leu Glu Pro Leu Lys Asp Thr Ala Ala Gly Gln Asn Gly Lys Val
 465 470 475 480

aag ctt ttc ccc agt gag acc gtt ata gcc gag ggc atc tta aag tcc 1488
 Lys Leu Phe Pro Ser Glu Thr Val Ile Ala Glu Gly Ile Leu Lys Ser
 485 490 495

acc agg gca aag tct gac tca gac tca gtc aat tcc gtg ttc tca gac 1536
 Thr Arg Ala Lys Ser Asp Ser Asp Ser Val Asn Ser Val Phe Ser Asp
 500 505 510

aca ccc ttt gtg gca tcc act 1557
 Thr Pro Phe Val Ala Ser Thr
 515

<210> 16
 <211> 519
 <212> PRT
 <213> Mus musculus

<400> 16
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 Pro Gly Cys Arg Glu Leu Leu Cys Leu Leu Val Ile Ala Val Met Val
 20 25 30
 Ser Pro Ser Ala Ser Gly Met Cys Pro Thr Ala Cys Ile Cys Ala Thr
 35 40 45
 Asp Ile Val Ser Cys Thr Asn Lys Asn Leu Ser Lys Val Pro Gly Asn
 50 55 60
 Leu Phe Arg Leu Ile Lys Arg Leu Asp Leu Ser Tyr Asn Arg Ile Gly
 65 70 75 80
 Leu Leu Asp Ala Asp Trp Ile Pro Val Ser Phe Val Lys Leu Ser Thr
 85 90 95
 Leu Ile Leu Arg His Asn Asn Ile Thr Ser Ile Ser Thr Gly Ser Phe
 100 105 110
 Ser Thr Thr Pro Asn Leu Lys Cys Leu Asp Leu Ser Ser Asn Arg Leu
 115 120 125
 Lys Ser Val Lys Ser Ala Thr Phe Gln Glu Leu Lys Ala Leu Glu Val
 130 135 140
 Leu Leu Leu Tyr Asn Asn His Ile Ser Tyr Leu Asp Pro Ala Ala Phe
 145 150 155 160
 Gly Gly Leu Ser His Leu Gln Lys Leu Tyr Leu Ser Gly Asn Phe Leu
 165 170 175
 Thr Gln Phe Pro Met Asp Leu Tyr Thr Gly Arg Phe Lys Leu Ala Asp

180						185						190					
Leu	Thr	Phe	Leu	Asp	Val	Ser	Tyr	Asn	Arg	Ile	Pro	Ser	Ile	Pro	Met		
		195					200						205				
His	His	Ile	Asn	Leu	Val	Pro	Gly	Arg	Gln	Leu	Arg	Gly	Ile	Tyr	Leu		
	210					215					220						
His	Gly	Asn	Pro	Phe	Val	Cys	Asp	Cys	Ser	Leu	Tyr	Ser	Leu	Leu	Ile		
225					230					235					240		
Phe	Trp	Tyr	Arg	Arg	His	Phe	Ser	Ser	Val	Met	Asp	Phe	Lys	Asn	Asp		
				245					250					255			
Tyr	Thr	Cys	Arg	Leu	Trp	Ser	Asp	Ser	Arg	His	Ser	His	Gln	Leu	Gln		
			260					265					270				
Leu	Leu	Gln	Glu	Ser	Phe	Leu	Asn	Cys	Ser	Tyr	Ser	Val	Ile	Asn	Gly		
		275					280					285					
Ser	Phe	His	Ala	Leu	Gly	Phe	Ile	His	Glu	Ala	Gln	Val	Gly	Glu	Arg		
	290					295					300						
Ala	Ile	Val	His	Cys	Asp	Ser	Lys	Thr	Gly	Asn	Gly	Asn	Thr	Asp	Phe		
305					310					315					320		
Ile	Trp	Val	Gly	Pro	Asp	Asn	Arg	Leu	Leu	Glu	Pro	Asp	Lys	Asp	Met		
				325					330					335			
Gly	Asn	Phe	Arg	Val	Phe	Tyr	Asn	Gly	Ser	Leu	Val	Ile	Glu	Asn	Pro		
			340					345					350				
Gly	Phe	Glu	Asp	Ala	Gly	Val	Tyr	Ser	Cys	Ile	Ala	Met	Asn	Arg	Gln		
		355					360					365					
Arg	Leu	Leu	Asn	Glu	Thr	Val	Asp	Ile	Met	Ile	Asn	Val	Ser	Asn	Phe		
	370					375					380						
Thr	Ile	Asn	Arg	Ser	His	Ala	His	Glu	Ala	Phe	Asn	Thr	Ala	Phe	Thr		
385					390					395					400		
Thr	Leu	Ala	Ala	Cys	Val	Ala	Ser	Ile	Val	Leu	Val	Leu	Leu	Tyr	Leu		
				405					410					415			
Tyr	Leu	Thr	Pro	Cys	Pro	Cys	Lys	Cys	Lys	Ala	Lys	Arg	Gln	Lys	Asn		
			420					425					430				
Thr	Leu	Ser	Gln	Ser	Ser	Ala	His	Ser	Ser	Ile	Leu	Ser	Pro	Gly	Pro		
		435					440					445					
Thr	Gly	Asp	Ala	Ser	Ala	Asp	Asp	Arg	Lys	Ala	Gly	Lys	Arg	Val	Val		
	450					455					460						
Phe	Leu	Glu	Pro	Leu	Lys	Asp	Thr	Ala	Ala	Gly	Gln	Asn	Gly	Lys	Val		
465					470					475					480		
Lys	Leu	Phe	Pro	Ser	Glu	Thr	Val	Ile	Ala	Glu	Gly	Ile	Leu	Lys	Ser		
				485					490					495			
Thr	Arg	Ala	Lys	Ser	Asp	Ser	Asp	Ser	Val	Asn	Ser	Val	Phe	Ser	Asp		
			500					505					510				

Thr Pro Phe Val Ala Ser Thr
515

<210> 17
<211> 1524
<212> DNA
<213> Mus musculus

<220>
<221> CDS
<222> (1)..(1524)

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Met Ala Trp Leu Val Leu Ser Gly Ile Leu Leu Cys Met Leu Gly Ala
1 5 10 15
gga ttg ggc act tca gac ttg gag gat gtt ctg cct cct gct ccc cac 96
Gly Leu Gly Thr Ser Asp Leu Glu Asp Val Leu Pro Pro Ala Pro His
20 25 30
aac tgc ccc gat ata tgc atc tgt gct gcc gat gtg ttg agc tgt gcg 144
Asn Cys Pro Asp Ile Cys Ile Cys Ala Ala Asp Val Leu Ser Cys Ala
35 40 45
ggc cgt ggg tta cag gac ttg ccg gta gca ctg cct acc act gct gca 192
Gly Arg Gly Leu Gln Asp Leu Pro Val Ala Leu Pro Thr Thr Ala Ala
50 55 60
gaa ctc gat ttg agc cac aac gca ctc aaa cgc ctg cac ccg ggg tgg 240
Glu Leu Asp Leu Ser His Asn Ala Leu Lys Arg Leu His Pro Gly Trp
65 70 75 80
tta gcg ccc ctc tcc cgg ctg cgt gcc ttg cac cta ggc tat aat aag 288
Leu Ala Pro Leu Ser Arg Leu Arg Ala Leu His Leu Gly Tyr Asn Lys
85 90 95
ctg gaa gtc ctg ggc cat ggt gcg ttc acc aat gcc agt ggc ctg agg 336
Leu Glu Val Leu Gly His Gly Ala Phe Thr Asn Ala Ser Gly Leu Arg
100 105 110
aca ctt gac ctg tcc tct aat atg tta agg atg ctc cat acc cat gac 384
Thr Leu Asp Leu Ser Ser Asn Met Leu Arg Met Leu His Thr His Asp
115 120 125
ctg gat ggc ctg gag gag ctg gag aag tta ctt ctg ttc aat aac agc 432
Leu Asp Gly Leu Glu Glu Glu Lys Leu Leu Leu Phe Asn Asn Ser
130 135 140
ctg atg cac ttg gac ctg gat gcc ttc cag ggc ctg cgc atg ctt agc 480
Leu Met His Leu Asp Leu Asp Ala Phe Gln Gly Leu Arg Met Leu Ser
145 150 155 160
cac ctc tat ctc agc tgc aac gag ctc tcc tct ttc tct ttc aac cac 528
His Leu Tyr Leu Ser Cys Asn Glu Leu Ser Ser Phe Ser Phe Asn His
165 170 175

ttg cac ggt ctg ggg tta acc cgc ctg cgg act ctg gac ctc tcc tcc	576
Leu His Gly Leu Gly Leu Thr Arg Leu Arg Thr Leu Asp Leu Ser Ser	
180 185 190	
aac tgg ctg aaa cat atc tcc atc cct gag ttg gct gca ctg cca act	624
Asn Trp Leu Lys His Ile Ser Ile Pro Glu Leu Ala Ala Leu Pro Thr	
195 200 205	
tat ctc aag aac agg ctc tac ctg cac aac aac ccg ctg ccc tgt gac	672
Tyr Leu Lys Asn Arg Leu Tyr Leu His Asn Asn Pro Leu Pro Cys Asp	
210 215 220	
tgc agc ctc tac cac ctg ctc cgg cgc tgg cac cag cgg ggc ctg agt	720
Cys Ser Leu Tyr His Leu Leu Arg Arg Trp His Gln Arg Gly Leu Ser	
225 230 235 240	
gcc ctg cat gat ttt gaa cgc gag tac aca tgc ttg gtc ttt aag gtg	768
Ala Leu His Asp Phe Glu Arg Glu Tyr Thr Cys Leu Val Phe Lys Val	
245 250 255	
tca gag tcc cga gtg cgc ttt ttt gag cac agc cgg gtc ttc aag aac	816
Ser Glu Ser Arg Val Arg Phe Phe Glu His Ser Arg Val Phe Lys Asn	
260 265 270	
tgc tct gtg gct gca gct cca ggc tta gag ctg cct gaa gag cag ctg	864
Cys Ser Val Ala Ala Ala Pro Gly Leu Glu Leu Pro Glu Glu Gln Leu	
275 280 285	
cac gcg cag gtg ggc cag tcc ctg agg ctc ttc tgc aac acc agt gtg	912
His Ala Gln Val Gly Gln Ser Leu Arg Leu Phe Cys Asn Thr Ser Val	
290 295 300	
cct gcc act cgg gtg gcc tgg gtc tcc ccg aag aat gag ctg ctt gtg	960
Pro Ala Thr Arg Val Ala Trp Val Ser Pro Lys Asn Glu Leu Leu Val	
305 310 315 320	
gcg cca gcc tct cag gat ggt agc atc gct gtg ttg gct gat ggc agc	1008
Ala Pro Ala Ser Gln Asp Gly Ser Ile Ala Val Leu Ala Asp Gly Ser	
325 330 335	
tta gcc ata ggc agg gtg caa gag cag cac gca ggc gtc ttt gtg tgc	1056
Leu Ala Ile Gly Arg Val Gln Glu Gln His Ala Gly Val Phe Val Cys	
340 345 350	
ctg gcc agt ggg ccc cgc ctg cac cac aac cag aca ctt gag tac aat	1104
Leu Ala Ser Gly Pro Arg Leu His His Asn Gln Thr Leu Glu Tyr Asn	
355 360 365	
gtg agt gtg caa aag gct cgc ccc gag cca gag act ttc aac aca ggc	1152
Val Ser Val Gln Lys Ala Arg Pro Glu Pro Glu Thr Phe Asn Thr Gly	
370 375 380	
ttt acc acc ctg ctg ggc tgt att gtg ggc ctg gtg ctg gtg ttg ctc	1200
Phe Thr Thr Leu Leu Gly Cys Ile Val Gly Leu Val Leu Val Leu Leu	
385 390 395 400	
tac ttg ttt gca cca ccc tgt cgt ggc tgc tgt cac tgc tgt cag cgg	1248
Tyr Leu Phe Ala Pro Pro Cys Arg Gly Cys Cys His Cys Cys Gln Arg	
405 410 415	
gcc tgc cgc aac cgt tgc tgg ccc cgg gca tcc agt cca ctc cag gag	1296

Ala Cys Arg Asn Arg Cys Trp Pro Arg Ala Ser Ser Pro Leu Gln Glu
420 425 430

ctg agc gca cag tcc tcc atg ctc agc act acg cca cca gat gca ccc 1344
Leu Ser Ala Gln Ser Ser Met Leu Ser Thr Thr Pro Pro Asp Ala Pro
435 440 445

agc cgc aag gcc agt gtc cac aag cat gtg gtc ttc ctg gag ccg ggc 1392
Ser Arg Lys Ala Ser Val His Lys His Val Val Phe Leu Glu Pro Gly
450 455 460

aag aag ggc ctc aat ggc cgt gtg cag ctc gca gta gct gaa gac ttc 1440
Lys Lys Gly Leu Asn Gly Arg Val Gln Leu Ala Val Ala Glu Asp Phe
465 470 475 480

gat ctg tgc aac ccc atg ggc ttg caa ctc aag gct ggc tct gaa tca 1488
Asp Leu Cys Asn Pro Met Gly Leu Gln Leu Lys Ala Gly Ser Glu Ser
485 490 495

gcc agt tcc acg ggc tca gag ggt ctc gtg atg agc 1524
Ala Ser Ser Thr Gly Ser Glu Gly Leu Val Met Ser
500 505

<210> 18
<211> 508
<212> PRT
<213> Mus musculus

<400> 18
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Gly Leu Gly Thr Ser Asp Leu Glu Asp Val Leu Pro Pro Ala Pro His
20 25 30

Asn Cys Pro Asp Ile Cys Ile Cys Ala Ala Asp Val Leu Ser Cys Ala
35 40 45

Gly Arg Gly Leu Gln Asp Leu Pro Val Ala Leu Pro Thr Thr Ala Ala
50 55 60

Glu Leu Asp Leu Ser His Asn Ala Leu Lys Arg Leu His Pro Gly Trp
65 70 75 80

Leu Ala Pro Leu Ser Arg Leu Arg Ala Leu His Leu Gly Tyr Asn Lys
85 90 95

Leu Glu Val Leu Gly His Gly Ala Phe Thr Asn Ala Ser Gly Leu Arg
100 105 110

Thr Leu Asp Leu Ser Ser Asn Met Leu Arg Met Leu His Thr His Asp
115 120 125

Leu Asp Gly Leu Glu Glu Leu Glu Lys Leu Leu Leu Phe Asn Asn Ser
130 135 140

Leu Met His Leu Asp Leu Asp Ala Phe Gln Gly Leu Arg Met Leu Ser
145 150 155 160

His Leu Tyr Leu Ser Cys Asn Glu Leu Ser Ser Phe Ser Phe Asn His
 165 170 175
 Leu His Gly Leu Gly Leu Thr Arg Leu Arg Thr Leu Asp Leu Ser Ser
 180 185 190
 Asn Trp Leu Lys His Ile Ser Ile Pro Glu Leu Ala Ala Leu Pro Thr
 195 200 205
 Tyr Leu Lys Asn Arg Leu Tyr Leu His Asn Asn Pro Leu Pro Cys Asp
 210 215 220
 Cys Ser Leu Tyr His Leu Leu Arg Arg Trp His Gln Arg Gly Leu Ser
 225 230 235 240
 Ala Leu His Asp Phe Glu Arg Glu Tyr Thr Cys Leu Val Phe Lys Val
 245 250 255
 Ser Glu Ser Arg Val Arg Phe Phe Glu His Ser Arg Val Phe Lys Asn
 260 265 270
 Cys Ser Val Ala Ala Ala Pro Gly Leu Glu Leu Pro Glu Glu Gln Leu
 275 280 285
 His Ala Gln Val Gly Gln Ser Leu Arg Leu Phe Cys Asn Thr Ser Val
 290 295 300
 Pro Ala Thr Arg Val Ala Trp Val Ser Pro Lys Asn Glu Leu Leu Val
 305 310 315 320
 Ala Pro Ala Ser Gln Asp Gly Ser Ile Ala Val Leu Ala Asp Gly Ser
 325 330 335
 Leu Ala Ile Gly Arg Val Gln Glu Gln His Ala Gly Val Phe Val Cys
 340 345 350
 Leu Ala Ser Gly Pro Arg Leu His His Asn Gln Thr Leu Glu Tyr Asn
 355 360 365
 Val Ser Val Gln Lys Ala Arg Pro Glu Pro Glu Thr Phe Asn Thr Gly
 370 375 380
 Phe Thr Thr Leu Leu Gly Cys Ile Val Gly Leu Val Leu Val Leu Leu
 385 390 395 400
 Tyr Leu Phe Ala Pro Pro Cys Arg Gly Cys Cys His Cys Cys Gln Arg
 405 410 415
 Ala Cys Arg Asn Arg Cys Trp Pro Arg Ala Ser Ser Pro Leu Gln Glu
 420 425 430
 Leu Ser Ala Gln Ser Ser Met Leu Ser Thr Thr Pro Pro Asp Ala Pro
 435 440 445
 Ser Arg Lys Ala Ser Val His Lys His Val Val Phe Leu Glu Pro Gly
 450 455 460
 Lys Lys Gly Leu Asn Gly Arg Val Gln Leu Ala Val Ala Glu Asp Phe
 465 470 475 480
 Asp Leu Cys Asn Pro Met Gly Leu Gln Leu Lys Ala Gly Ser Glu Ser

485

490

495

Ala Ser Ser Thr Gly Ser Glu Gly Leu Val Met Ser
500 505

<210> 19

<211> 3630

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)..(3630)

<400> 19

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Met Arg Pro Ser Gly Thr Ala Gly Ala Ala Leu Leu Ala Leu Leu Ala	
1 5 10 15	
gcg ctc tgc ccg gcg agt cgg gct ctg gag gaa aag aaa gtt tgc caa	96
Ala Leu Cys Pro Ala Ser Arg Ala Leu Glu Glu Lys Lys Val Cys Gln	
20 25 30	
ggc acg agt aac aag ctc acg cag ttg ggc act ttt gaa gat cat ttt	144
Gly Thr Ser Asn Lys Leu Thr Gln Leu Gly Thr Phe Glu Asp His Phe	
35 40 45	
ctc agc ctc cag agg atg ttc aat aac tgt gag gtg gtc ctt ggg aat	192
Leu Ser Leu Gln Arg Met Phe Asn Asn Cys Glu Val Val Leu Gly Asn	
50 55 60	
ttg gaa att acc tat gtg cag agg aat tat gat ctt tcc ttc tta aag	240
Leu Glu Ile Thr Tyr Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys	
65 70 75 80	
acc atc cag gag gtg gct ggt tat gtc ctc att gcc ctc aac aca gtg	288
Thr Ile Gln Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val	
85 90 95	
gag cga att cct ttg gaa aac ctg cag atc atc aga gga aat atg tac	336
Glu Arg Ile Pro Leu Glu Asn Leu Gln Ile Ile Arg Gly Asn Met Tyr	
100 105 110	
tac gaa aat tcc tat gcc tta gca gtc tta tct aac tat gat gca aat	384
Tyr Glu Asn Ser Tyr Ala Leu Ala Val Leu Ser Asn Tyr Asp Ala Asn	
115 120 125	
aaa acc gga ctg aag gag ctg ccc atg aga aat tta cag gaa atc ctg	432
Lys Thr Gly Leu Lys Glu Leu Pro Met Arg Asn Leu Gln Glu Ile Leu	
130 135 140	
cat ggc gcc gtg cgg ttc agc aac aac cct gcc ctg tgc aac gtg gag	480
His Gly Ala Val Arg Phe Ser Asn Asn Pro Ala Leu Cys Asn Val Glu	
145 150 155 160	
agc atc cag tgg cgg gac ata gtc agc agt gac ttt ctc agc aac atg	528
Ser Ile Gln Trp Arg Asp Ile Val Ser Ser Asp Phe Leu Ser Asn Met	
165 170 175	

tcg atg gac ttc cag aac cac ctg ggc agc tgc caa aag tgt gat cca	576
Ser Met Asp Phe Gln Asn His Leu Gly Ser Cys Gln Lys Cys Asp Pro	
180 185 190	
agc tgt ccc aat ggg agc tgc tgg ggt gca gga gag gag aac tgc cag	624
Ser Cys Pro Asn Gly Ser Cys Trp Gly Ala Gly Glu Glu Asn Cys Gln	
195 200 205	
aaa ctg acc aaa atc atc tgt gcc cag cag tgc tcc ggg cgc tgc cgt	672
Lys Leu Thr Lys Ile Ile Cys Ala Gln Gln Cys Ser Gly Arg Cys Arg	
210 215 220	
ggc aag tcc ccc agt gac tgc tgc cac aac cag tgt gct gca ggc tgc	720
Gly Lys Ser Pro Ser Asp Cys Cys His Asn Gln Cys Ala Ala Gly Cys	
225 230 235 240	
aca ggc ccc cgg gag agc gac tgc ctg gtc tgc cgc aaa ttc cga gac	768
Thr Gly Pro Arg Glu Ser Asp Cys Leu Val Cys Arg Lys Phe Arg Asp	
245 250 255	
gaa gcc acg tgc aag gac acc tgc ccc cca ctc atg ctc tac aac ccc	816
Glu Ala Thr Cys Lys Asp Thr Cys Pro Pro Leu Met Leu Tyr Asn Pro	
260 265 270	
acc acg tac cag atg gat gtg aac ccc gag ggc aaa tac agc ttt ggt	864
Thr Thr Tyr Gln Met Asp Val Asn Pro Glu Gly Lys Tyr Ser Phe Gly	
275 280 285	
gcc acc tgc gtg aag aag tgt ccc cgt aat tat gtg gtg aca gat cac	912
Ala Thr Cys Val Lys Lys Cys Pro Arg Asn Tyr Val Val Thr Asp His	
290 295 300	
ggc tcg tgc gtc cga gcc tgt ggg gcc gac agc tat gag atg gag gaa	960
Gly Ser Cys Val Arg Ala Cys Gly Ala Asp Ser Tyr Glu Met Glu Glu	
305 310 315 320	
gac ggc gtc cgc aag tgt aag aag tgc gaa ggg cct tgc cgc aaa gtg	1008
Asp Gly Val Arg Lys Cys Lys Lys Cys Glu Gly Pro Cys Arg Lys Val	
325 330 335	
tgt aac gga ata ggt att ggt gaa ttt aaa gac tca ctc tcc ata aat	1056
Cys Asn Gly Ile Gly Ile Gly Glu Phe Lys Asp Ser Leu Ser Ile Asn	
340 345 350	
gct acg aat att aaa cac ttc aaa aac tgc acc tcc atc agt ggc gat	1104
Ala Thr Asn Ile Lys His Phe Lys Asn Cys Thr Ser Ile Ser Gly Asp	
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Leu His Ile Leu Pro Val Ala Phe Arg Gly Asp Ser Phe Thr His Thr	
370 375 380	
cct cct ctg gat cca cag gaa ctg gat att ctg aaa acc gta aag gaa	1200
Pro Pro Leu Asp Pro Gln Glu Leu Asp Ile Leu Lys Thr Val Lys Glu	
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Ile Thr Gly Phe Leu Leu Ile Gln Ala Trp Pro Glu Asn Arg Thr Asp	
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His	Gly	Gln	Phe	Ser	Leu	Ala	Val	Val	Ser	Leu	Asn	Ile	Thr	Ser	Leu	
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Phe	Gly	Thr	Ser	Gly	Gln	Lys	Thr	Lys	Ile	Ile	Ser	Asn	Arg	Gly	Glu	
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Asn	Ser	Cys	Lys	Ala	Thr	Gly	Gln	Val	Cys	His	Ala	Leu	Cys	Ser	Pro	
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Glu	Gly	Cys	Trp	Gly	Pro	Glu	Pro	Arg	Asp	Cys	Val	Ser	Cys	Arg	Asn	
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gtc	agc	cga	ggc	agg	gaa	tgc	gtg	gac	aag	tgc	aac	ctt	ctg	gag	ggt	1632
Val	Ser	Arg	Gly	Arg	Glu	Cys	Val	Asp	Lys	Cys	Asn	Leu	Leu	Glu	Gly	
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gag	cca	agg	gag	ttt	gtg	gag	aac	tct	gag	tgc	ata	cag	tgc	cac	cca	1680
Glu	Pro	Arg	Glu	Phe	Val	Glu	Asn	Ser	Glu	Cys	Ile	Gln	Cys	His	Pro	
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Glu	Cys	Leu	Pro	Gln	Ala	Met	Asn	Ile	Thr	Cys	Thr	Gly	Arg	Gly	Pro	
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Asp	Asn	Cys	Ile	Gln	Cys	Ala	His	Tyr	Ile	Asp	Gly	Pro	His	Cys	Val	
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Lys	Thr	Cys	Pro	Ala	Gly	Val	Met	Gly	Glu	Asn	Asn	Thr	Leu	Val	Trp	
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Lys	Tyr	Ala	Asp	Ala	Gly	His	Val	Cys	His	Leu	Cys	His	Pro	Asn	Cys	
	610				615						620					
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Thr	Tyr	Gly	Cys	Thr	Gly	Pro	Gly	Leu	Glu	Gly	Cys	Pro	Thr	Asn	Gly	
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cct	aag	atc	ccg	tcc	atc	gcc	act	ggg	atg	gtg	ggg	gcc	ctc	ctc	ttg	1968
Pro	Lys	Ile	Pro	Ser	Ile	Ala	Thr	Gly	Met	Val	Gly	Ala	Leu	Leu	Leu	
			645						650					655		
ctg	ctg	gtg	gtg	gcc	ctg	ggg	atc	ggc	ctc	ttc	atg	cga	agg	cgc	cac	2016
Leu	Leu	Val	Val	Ala	Leu	Gly	Ile	Gly	Leu	Phe	Met	Arg	Arg	Arg	His	

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gtg gag cct ctt aca ccc agt gga gaa gct ccc aac caa gct ctc ttg Val Glu Pro Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala Leu Leu 690 695 700			2112
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cag cat gtc aag atc aca gat ttt ggg ctg gcc aaa ctg ctg ggt gcg Gln His Val Lys Ile Thr Asp Phe Gly Leu Ala Lys Leu Leu Gly Ala 850 855 860			2592
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aaa gga gaa cgc ctc cct cag cca ccc ata tgt acc atc gat gtc tac	2832
Lys Gly Glu Arg Leu Pro Gln Pro Pro Ile Cys Thr Ile Asp Val Tyr	
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Phe Arg Glu Leu Ile Ile Glu Phe Ser Lys Met Ala Arg Asp Pro Gln	
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cgc tac ctt gtc att cag ggg gat gaa aga atg cat ttg cca agt cct	2976
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Ser Ser Pro Ser Thr Ser Arg Thr Pro Leu Leu Ser Ser Leu Ser Ala	
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Thr Ser Asn Asn Ser Thr Val Ala Cys Ile Asp Arg Asn Gly Leu Gln	
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agc tgt ccc atc aag gaa gac agc ttc ttg cag cga tac agc tca gac	3216
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Pro Thr Gly Ala Leu Thr Glu Asp Ser Ile Asp Asp Thr Phe Leu Pro	
1075 1080 1085	
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Val Pro Glu Tyr Ile Asn Gln Ser Val Pro Lys Arg Pro Ala Gly Ser	
1090 1095 1100	
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Val Gln Asn Pro Val Tyr His Asn Gln Pro Leu Asn Pro Ala Pro Ser	
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Arg Asp Pro His Tyr Gln Asp Pro His Ser Thr Ala Val Gly Asn Pro	
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Glu Tyr Leu Asn Thr Val Gln Pro Thr Cys Val Asn Ser Thr Phe Asp	
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Leu Glu Ile Thr Tyr Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys
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Thr Ile Gln Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val
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Glu Arg Ile Pro Leu Glu Asn Leu Gln Ile Ile Arg Gly Asn Met Tyr
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Tyr Glu Asn Ser Tyr Ala Leu Ala Val Leu Ser Asn Tyr Asp Ala Asn
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Lys Thr Gly Leu Lys Glu Leu Pro Met Arg Asn Leu Gln Glu Ile Leu
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His Gly Ala Val Arg Phe Ser Asn Asn Pro Ala Leu Cys Asn Val Glu
 145 150 155 160

Ser Ile Gln Trp Arg Asp Ile Val Ser Ser Asp Phe Leu Ser Asn Met
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Ser Met Asp Phe Gln Asn His Leu Gly Ser Cys Gln Lys Cys Asp Pro
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Ser Cys Pro Asn Gly Ser Cys Trp Gly Ala Gly Glu Glu Asn Cys Gln

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Gly Lys Ser Pro Ser Asp Cys Cys His Asn Gln Cys Ala Ala Gly Cys 225 230 235 240		
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Glu Ala Thr Cys Lys Asp Thr Cys Pro Pro Leu Met Leu Tyr Asn Pro 260 265 270		
Thr Thr Tyr Gln Met Asp Val Asn Pro Glu Gly Lys Tyr Ser Phe Gly 275 280 285		
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Gly Ser Cys Val Arg Ala Cys Gly Ala Asp Ser Tyr Glu Met Glu Glu 305 310 315 320		
Asp Gly Val Arg Lys Cys Lys Lys Cys Glu Gly Pro Cys Arg Lys Val 325 330 335		
Cys Asn Gly Ile Gly Ile Gly Glu Phe Lys Asp Ser Leu Ser Ile Asn 340 345 350		
Ala Thr Asn Ile Lys His Phe Lys Asn Cys Thr Ser Ile Ser Gly Asp 355 360 365		
Leu His Ile Leu Pro Val Ala Phe Arg Gly Asp Ser Phe Thr His Thr 370 375 380		
Pro Pro Leu Asp Pro Gln Glu Leu Asp Ile Leu Lys Thr Val Lys Glu 385 390 395 400		
Ile Thr Gly Phe Leu Leu Ile Gln Ala Trp Pro Glu Asn Arg Thr Asp 405 410 415		
Leu His Ala Phe Glu Asn Leu Glu Ile Ile Arg Gly Arg Thr Lys Gln 420 425 430		
His Gly Gln Phe Ser Leu Ala Val Val Ser Leu Asn Ile Thr Ser Leu 435 440 445		
Gly Leu Arg Ser Leu Lys Glu Ile Ser Asp Gly Asp Val Ile Ile Ser 450 455 460		
Gly Asn Lys Asn Leu Cys Tyr Ala Asn Thr Ile Asn Trp Lys Lys Leu 465 470 475 480		
Phe Gly Thr Ser Gly Gln Lys Thr Lys Ile Ile Ser Asn Arg Gly Glu 485 490 495		
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Pro Lys Ile Pro Ser Ile Ala Thr Gly Met Val Gly Ala Leu Leu Leu 645 650 655		
Leu Leu Val Val Ala Leu Gly Ile Gly Leu Phe Met Arg Arg Arg His 660 665 670		
Ile Val Arg Lys Arg Thr Leu Arg Arg Leu Leu Gln Glu Arg Glu Leu 675 680 685		
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Leu Val His Arg Asp Leu Ala Ala Arg Asn Val Leu Val Lys Thr Pro 835 840 845		

Gln His Val Lys Ile Thr Asp Phe Gly Leu Ala Lys Leu Leu Gly Ala
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 Lys Pro Tyr Asp Gly Ile Pro Ala Ser Glu Ile Ser Ser Ile Leu Glu
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 Glu Tyr Leu Asn Thr Val Gln Pro Thr Cys Val Asn Ser Thr Phe Asp
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 Ser Pro Ala His Trp Ala Gln Lys Gly Ser His Gln Ile Ser Leu Asp
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 Met Arg Pro
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 tcc ggg acg gcc ggg gca gcg ctc ctg gcg ctg ctg gct gcg ctc tgc 223
 Ser Gly Thr Ala Gly Ala Ala Leu Leu Ala Leu Leu Ala Ala Leu Cys
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 ccg gcg agt cgg gct ctg gag gaa aag aaa gtt tgc caa ggc acg agt 271
 Pro Ala Ser Arg Ala Leu Glu Glu Lys Lys Val Cys Gln Gly Thr Ser
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 aac aag ctc acg cag ttg ggc act ttt gaa gat cat ttt ctc agc ctc 319
 Asn Lys Leu Thr Gln Leu Gly Thr Phe Glu Asp His Phe Leu Ser Leu
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 cag agg atg ttc aat aac tgt gag gtg gtc ctt ggg aat ttg gaa att 367
 Gln Arg Met Phe Asn Asn Cys Glu Val Val Leu Gly Asn Leu Glu Ile
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 Thr Tyr Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys Thr Ile Gln
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 gag gtg gct ggt tat gtc ctc att gcc ctc aac aca gtg gag cga att 463
 Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val Glu Arg Ile
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 cct ttg gaa aac ctg cag atc atc aga gga aat atg tac tac gaa aat 511
 Pro Leu Glu Asn Leu Gln Ile Ile Arg Gly Asn Met Tyr Tyr Glu Asn
 100 105 110 115
 tcc tat gcc tta gca gtc tta tct aac tat gat gca aat aaa acc gga 559
 Ser Tyr Ala Leu Ala Val Leu Ser Asn Tyr Asp Ala Asn Lys Thr Gly

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Leu Lys Glu	Leu Pro Met Arg	Asn Leu Gln Glu	Ile Leu His Gly	Ala								
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Val Arg Phe	Ser Asn Asn Pro	Ala Leu Cys Asn	Val Glu Ser Ile	Gln								
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Pro Ser Asp	Cys Cys His Asn	Gln Cys Ala Ala	Gly Cys Thr Gly	Pro								
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Arg Glu Ser	Asp Cys Leu Val	Cys Arg Lys Phe	Arg Asp Glu Ala	Thr								
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Cys Lys Asp	Thr Cys Pro Pro	Leu Met Leu Tyr	Asn Pro Thr Thr	Tyr								
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Gln Met Asp	Val Asn Pro Glu	Gly Lys Tyr Ser	Phe Gly Ala Thr	Cys								
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Val Lys Lys	Cys Pro Arg Asn	Tyr Val Val Thr	Asp His Gly Ser	Cys								
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Ile Lys His	Phe Lys Asn Cys	Thr Ser Ile Ser	Gly Asp Leu His	Ile								
360		365	370									

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Leu Pro Val Ala Phe Arg Gly Asp Ser Phe Thr His Thr Pro Pro Leu	
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Asp Pro Gln Glu Leu Asp Ile Leu Lys Thr Val Lys Glu Ile Thr Gly	
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Phe Leu Leu Ile Gln Ala Trp Pro Glu Asn Arg Thr Asp Leu His Ala	
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Phe Glu Asn Leu Glu Ile Ile Arg Gly Arg Thr Lys Gln His Gly Gln	
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Phe Ser Leu Ala Val Val Ser Leu Asn Ile Thr Ser Leu Gly Leu Arg	
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Ser Leu Lys Glu Ile Ser Asp Gly Asp Val Ile Ile Ser Gly Asn Lys	
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Lys Ala Thr Gly Gln Val Cys His Ala Leu Cys Ser Pro Glu Gly Cys	
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Cys Thr Gly Pro Gly Leu Glu Gly Cys Pro Thr Asn Gly Pro Lys Ile	
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Gly Thr Val Tyr Lys Gly Leu Trp Ile Pro Glu Gly Glu Lys Val Lys	
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Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu Leu Asn Trp Cys Val	
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Gln Ile Ala Lys Gly Met Asn Tyr Leu Glu Asp Arg Arg Leu Val His	
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Leu Glu Ile Thr Tyr Val Gln Arg Asn Tyr Asp Leu Ser Phe Leu Lys
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Thr Ile Gln Glu Val Ala Gly Tyr Val Leu Ile Ala Leu Asn Thr Val
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185

190

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Lys Val Lys Ile Pro Val Ala Ile Lys Glu Leu Arg Glu Ala Thr Ser		
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Lys Pro Tyr Asp Gly Ile Pro Ala Ser Glu Ile Ser Ser Ile Leu Glu		
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Ile	Ile	Cys	Ala	Gln	Gln	Cys	Ser	His	Arg	Cys	Arg	Gly	Arg	Ser	Pro		
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Glu	Ser	Asp	Cys	Leu	Val	Cys	Gln	Lys	Phe	Gln	Asp	Glu	Ala	Thr	Cys		
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cga	gcc	tgt	ggg	cct	gac	tac	tac	gaa	gtg	gaa	gaa	gat	ggc	atc	cgc	1195	
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ggc	att	ggg	gaa	ttt	aaa	gac	aca	ctc	tcc	ata	aat	gct	aca	aac	atc	1291	
Gly	Ile	Gly	Glu	Phe	Lys	Asp	Thr	Leu	Ser	Ile	Asn	Ala	Thr	Asn	Ile		
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Pro Leu Thr Pro Ser Gly Glu Ala Pro Asn Gln Ala His Leu Arg Ile	
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Lys Ile Pro Val Ala Ile Lys Glu Leu Arg Glu Ala Thr Ser Pro Lys	
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Asn Pro His Val Cys Arg Leu Leu Gly Ile Cys Leu Thr Ser Thr Val	
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Gln Leu Ile Thr Gln Leu Met Pro Tyr Gly Cys Leu Leu Asp Tyr Val	
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Arg Glu His Lys Asp Asn Ile Gly Ser Gln Tyr Leu Leu Asn Trp Cys	
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 Ser Cys Pro Asn Gly Ser Cys Trp Gly Gly Gly Glu Glu Asn Cys Gln
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Val Ser Val Ile Met Asp Phe His Tyr Asn Glu Lys Arg Ile Tyr Trp	
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Ser Ala Leu Lys Tyr Pro Ala Asn Val Ala Val Asp Pro Val Glu Arg	
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Lys Thr Ile Trp Ile Ala Asn Lys His Thr Gly Lys Asp Met Val Arg	
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Cys	His	Gln	Leu	Val	Ser	Cys	Pro	Arg	Asn	Val	Ser	Glu	Cys	Ser	His	
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Ile	Phe	Ser	His	Gly	Asn	Ser	Ile	Phe	Arg	Ile	Asp	Thr	Glu	Gly	Thr
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 Pro Ser Val Ile Arg Val Asn Lys Arg Thr Gly Lys Asp Arg Val Arg
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Gly Pro Ala Pro Phe Leu Val Phe Ser Gln Gly Lys Ser Ile Ser Arg
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Leu Met Phe Trp Ser Ser Glu Val Thr Gly Ser Leu His Arg Ala His	
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Ser Arg Asp Arg Lys Tyr Cys Glu Asp Val Asn Glu Cys Ala Thr Gln	
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Cys Val Leu Thr Ser Asp Gly Pro Arg Cys Ile Cys Pro Ala Gly Ser	
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Ser	Asp	Trp	Ala	Ile	Pro	Ser	Val	Ile	Arg	Val	Asn	Lys	Arg	Thr	Gly	
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Gln	Asn	Arg	Val	Arg	Leu	Gln	Gly	Ser	Met	Leu	Lys	Pro	Ser	Ser	Leu	
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Gly Ile Ser Ala Asp Met Asp Ile His Tyr Lys Lys Glu Arg Leu Tyr	65	70	75
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Gly Val Ile Thr Val Thr Asp Met Thr Gly Lys Asn Ser Arg Val Leu	130	135	140
Leu Ser Ser Leu Lys His Pro Ser Asn Ile Ala Val Asp Pro Ile Glu	145	150	155
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Gln Asn His Gly Cys Thr Leu Gly Cys Glu Asn Thr Pro Gly Ser Tyr	355	360	365
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 Leu Val Val Val His Pro Leu Ala Lys Pro Gly Ala Asp Pro Cys Leu
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 Pro Asp Asp Asp Gly Thr Glu Ser Ser Thr Leu Val Ala Glu Ile Met
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 Cys Val Leu Ala Arg Ser Asp Cys Pro Ser Thr Ser Ser Arg Cys Ile
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 Glu Asn Ser Thr Ser Pro Leu Ser Ala Asp Pro Pro Val Ala Ala Ala
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 Val Val Ser His Phe Asn Asp Cys Pro Asp Ser His Thr Gln Phe Cys
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 Phe His Gly Thr Cys Arg Phe Leu Val Gln Glu Asp Lys Pro Ala Cys
 60 65 70

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 Val Cys His Ser Gly Tyr Val Gly Ala Arg Cys Glu His Ala Asp Leu
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 Leu Ala Val Val Ala Ala Ser Gln Lys Lys Gln Ala Ile Thr Ala Leu
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<210> 30

<211> 160

<212> PRT

<213> Homo sapiens

<223> Human TGF- alpha

<400> 30

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Asp Ser His Thr Gln Phe Cys Phe His Gly Thr Cys Arg Phe Leu Val
 50          55          60
Gln Glu Asp Lys Pro Ala Cys Val Cys His Ser Gly Tyr Val Gly Ala
 65          70          75          80
Arg Cys Glu His Ala Asp Leu Leu Ala Val Val Ala Ala Ser Gln Lys
 85          90          95
Lys Gln Ala Ile Thr Ala Leu Val Val Val Ser Ile Val Ala Leu Ala
100          105          110
Val Leu Ile Ile Thr Cys Val Leu Ile His Cys Cys Gln Val Arg Lys
115          120          125
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<212> PRT

<213> Mus musculus

<223> Murine TGF-alpha

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Leu Leu Lys Gly Arg Thr Ala Cys Cys His Ser Glu Thr Val Val
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